INR-410
INR-420

System Administrator's Manual

For Version 3.0.08

www.acti.com

2013/12/23

About This Manual

Target Audience

This manual is intended for **System Administrators** who are responsible for installing and setting up ACTi INR-410/420 surveillance system. The reader is expected to know the fundamentals of IP surveillance system integration and to own the administrative privileges to achieve all the tasks.

You may also check http://www.acti.com/product/detail/Standalone_NVR/INR-410 or http://www.acti.com/product/detail/Standalone_NVR/INR-420 for updates or release information about this software and document.

Content Overview

This manual provides information needed for planning the installation, installing, setting up the system and configuring the video streaming devices. Its main content consists of the following three sections:

- **Getting Started** provides the preparatory knowledge you should study before starting installation, such as license registration and backup/restore procedures.

- **Log in to the System** explains how to log in to the system right after a successful installation.

- **System Setup** gives instructions on the tasks such as adding devices to the system, configuring the device settings, scheduling the recordings, managing events, managing storage, managing groups/users and setting up Live View. For each major task, you will be given a brief introduction of operation principles, step-by-step instructions, and a simple method to check if you have done it correctly.

Related Documentation

Since this manual focuses on how to accomplish the tasks for system installation and configurations, there is very limited information about operation-wise directions for **End Users** who will be operating the NVR server system. To obtain the instructions on use of the NVR applications such as monitoring and playback, please download the latest ACTi INR-410/420 User's Manual from ACTi Corporation website.

Technical support

If you have any questions during system installation, please feel free to contact our engineers via our **Customer Help Desk** platform at http://www.acti.com/CHD.

Conventions Used in This Manual

The following are typographic conventions used in this manual:

- **Bold** indicates keywords, major functions of NVR, or a title of a section/column.
- *Italic* is used for a filename or location path.
- Underlined is used for a document name or hyperlink.
- "**Bold**" indicates the name of a button, a menu or a choice item.

Some notices are placed within the following boxes; each type of the box indicates different purposes or levels of importance for system:

Important Notice

The content within this box is an **important notice**. This notice is important for you to get certain functions to work properly, or to prevent from certain potential problems that may damage your system. Make sure you read this notice and follow the instructions.

Note

The content within this box is a **note**. A note is some necessary information you need to know about the action you are currently taking, like what will happen after you follow or don't follow certain procedure.

Tip

The content within this box is a **tip**. A tip gives you an alternative method to easily or quickly achieve an objective, usually for specific conditions.

Legal Notice

Disclaimer

- The information contained in this document is intended for general information purposes. ACTi Corporation shall not be liable for errors contained herein or for incidental or consequential damages arising from the furnishing, performance, or use of this manual.

- The information contained herein is subject to change without notice.

- The English version of this document is the official one for all purposes. All the translated versions are provided as a convenience. Any discrepancies or differences created in the translations of any other languages are not legally binding.

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Regulatory Compliance Information

Federal Communications Commission Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications to the equipment that are not expressly approved by the responsible party for compliance could void the user's authority to operate the equipment.

European Community Compliance Statement

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to European Standard EN 55022 and EN 55024. In a domestic environment, this product may cause radio interference in which cause the user be require to take adequate measures.

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Overview

Product Overview

INR-410/420 is a compact and reliable multi-channel standalone NVR. It contains a pre-installed Windows operating system, and ACTi NVR 3.0 video management software along with client software.

This unit is composed of:

●Computer

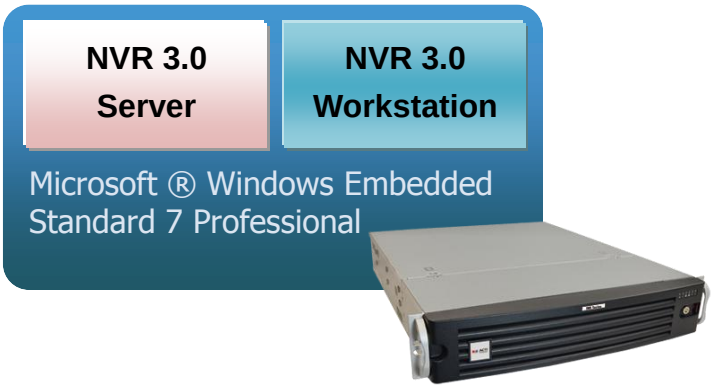
A PC, with Microsoft ® Windows Embedded Standard 7 Professional operating system pre-installed.

●NVR 3.0 Server System

A video management software that allows this PC to become a server, where the system administrator performs the administrative tasks and NVR server services (event handling, schedule recording, media streaming, etc) take place.

●NVR 3.0 Client Application

The dedicated client application of the NVR 3.0 system - **NVR3 Workstation**, allowing the user to directly access the NVR 3.0 system interface. A remote client can also access this system via network.

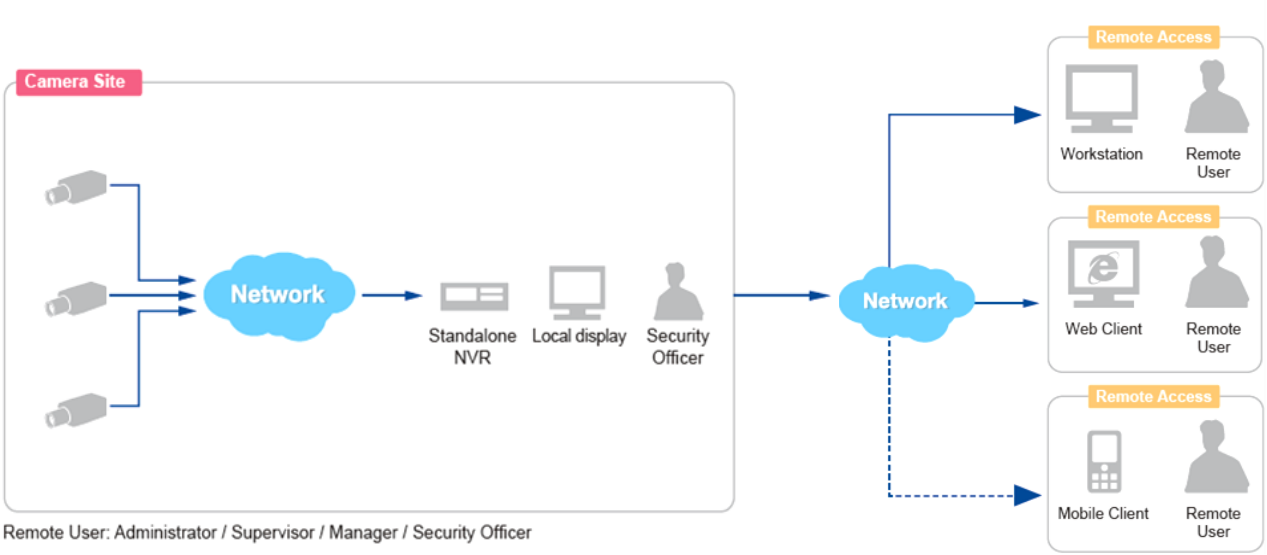


Server / Client Architecture

NVR 3.0 is a typical web-based server/client system. In a video surveillance system architecture, the **Server** serves as a video management service provider, aimed to run 24/7 offering non-stop services for clients. A **Client** makes requests of monitoring video streams or playback recordings to **Server**, which can reside on the same computer with server program (as from local) or on another computer (as from remote). **Server** starts automatically as soon as the **Server computer** (where it is installed) boots up, and operates in the background without requiring login by administrator. It would provide services over the TCP/IP network to multiple **Clients** upon request through HTTP Protocol.

There are two types of **Clients** in NVR 3.0 system: **Web Client** and **Workstation Client**. A user, connecting from whether web browser or workstation, will enjoy the same user interface and NVR functions.

- **Web Client**: the web version of interface to access the NVR server without need of installing any client program to become a client. Logging in the NVR server is as simple as visiting a website through IE browser.
- **Workstation Client:** the client application accessing the NVR server free from the use of browser .The workstation includes a set of programs that provide interface between users and the NVR server.



Getting Started

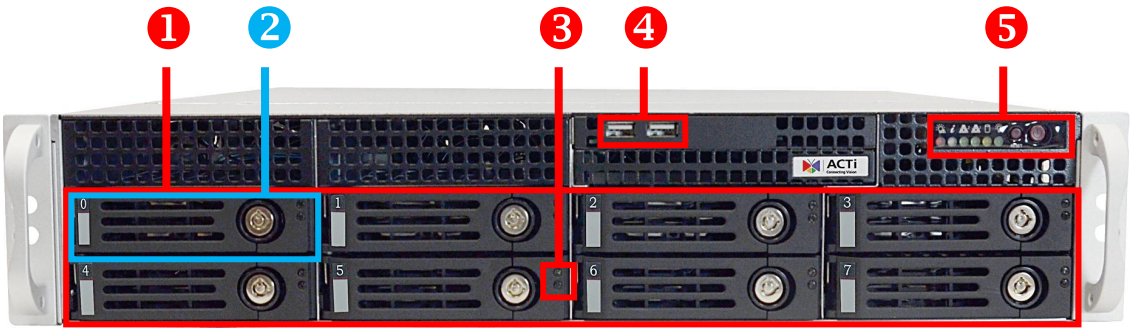
What's in the Box

This product package includes the following items:

1. **INR-410/420** x **1**
2. **Removable Hard Disk Bays** x **8** (Installed on the unit)
3. **Front Cover x 1**
4. **HDD Tray Keys x 4**
5. **HDD Screw Pack x 1**
6. **Power Cord** x **1**
7. **Adapter Converter** x **1**
8. **Warranty Card x 1**
9. **Quick Installation Guide** x **1**

At a Glance

Front Panel



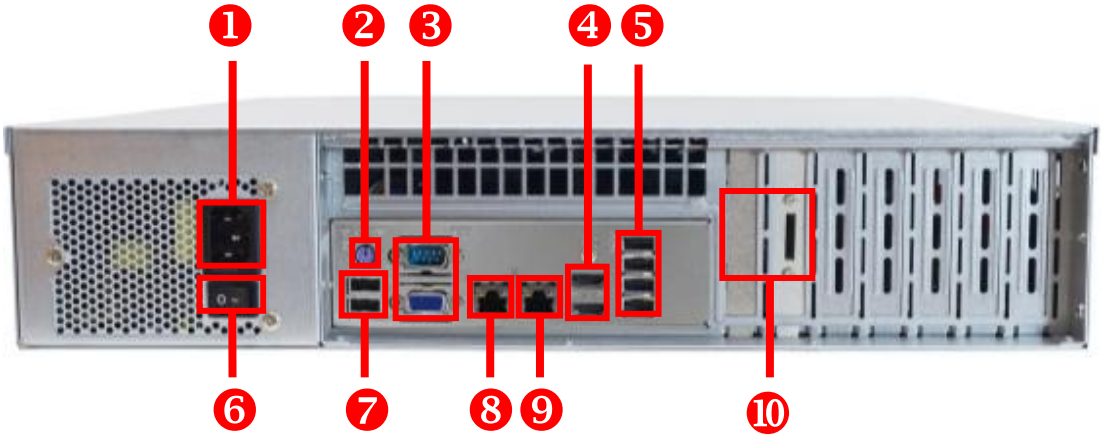
No.	Description	No.	Description
1	Disk Bays	4	USB Ports
2	System Disk (DO NOT REMOVE)	5	Buttons and System Status LEDs
3	HDD Status LEDs		

3 HDD Status LEDs

5 Buttons and System Status LEDs

*The LED icon on the front cover also represents **Overheat Alert** LED indicator.

Rear Panel



No	Description	No.	Description
1	AC Power Connector	6	Power Switch
2	PS/2 Connector	7	USB Ports
3	VGA Ports	8	LAN 1 Port
4	HDMI Ports	9	LAN 2 Port
5	USB Ports	10	eSATA Port(s) INR-410: 2 Ports ; INR-420: 1 Port

Rackmount the Unit

To make system maintenance easier, you may want to put INR-410/420 into the rack. To rackmount INR, you will need to install **INR Sliding Rail Kit,** offered as an optional accessory, on INR and make sure there is **2U** space in your rack. For detailed installation instructions, please refer to Rackmount Installation Guide packed with the sliding rail kit.

Hard Disk Installation

For video recordings, you should install at least ONE certified 3.5-inch SATA hard disk. Be sure to use the hard disk models ACTi has tested to be compatible with INR-410/420, and it is strongly recommended that you use hard disks of the same model and capacity. You may find the certified models via http://www.acti.com/hddselector.

The actual necessary space depends on the number of devices, recording and event rules settings. To get an approximate value, you may use ACTi software tool **Bandwidth & Storage Calculator** at http://www.acti.com/storagecalculator.

You can install up to **7** disks in to **Storage Disk Bays**. During the installation, please avoid removing the System Disk Bay.

Step 1: Remove the Tray

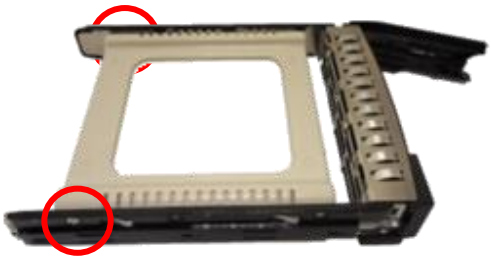
☞Slide the **Key Lock** aside, the **Latch Lever** will pop out by itself.

☞Hold the **Latch Lever** to pull out the tray.

Step 2: Mount the Disk

☞Loosen the two screws on the **Tray** to remove the dummy disk.

☞Secure the hard disk on the **Tray** with the disk screws provided, and make sure the disk connector faces towards the SATA contacts inside the unit.



Step 3: Install the Tray

☞Press on **Key Lock**, push the tray into the **Bay** until it stops.

☞Press on the **Latch Lever** until it clicks into place.

Repeat **Step 1~3** to finish installing all the storage disks.

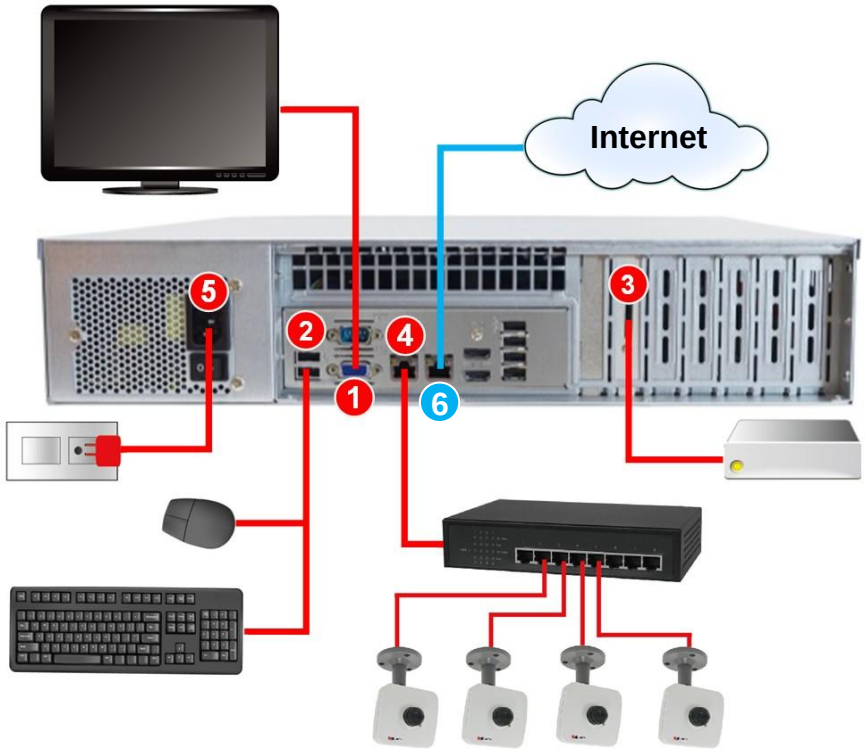
Step 4: Attach the Front Cover

☞Align the left end hooks of the cover to the holes on the left handle.

☞Press the latch and push the right end toward the right handle until it clicks into place.

Connect the Devices

Follow the procedures to connect the devices. These devices are supposed to get connected in the sequence shown below.



Step	Description
1	Connect the VGA monitor to INR.
2	Connect the USB keyboard and mouse to INR.
3	Finish setting up your eSATA storage device if needed (e.g. RAID configuration for multiple disks), connect it to INR and power it on. INR will recognize it as a normal single hard disk.
4	Connect the network switch to INR via one of the LAN ports.
5	Plug the power adapter into INR and electricity outlet.
6	Connect INR to the Internet if remote management via the Internet is required.

Tip

GNR-3000 supports iSCSI NAS. For detailed information on how to use iSCSI NAS with GNR-3000, please refer to our article on Using iSCSI NAS with NVR.

Start the Unit

1. On the rear panel, press down the **Power Switch** to the side with " **I** " mark.

2. On the front panel, press down Power Button, the **System Power LED Indicator** will light up and turn solid yellow.

Enter Windows

After the unit starts, key in "**123456**" to log in as Administrator to Windows Embedded 7 system.

Definitions of LED Indicators

System LED Indicators:

Indicator	LED Status	Description
System Power	Solid	The unit power is on.
System Activity	Solid	The system is booting up.
	Flashing	There system is operating and there is activity.
LAN 1	Flashing	There is network activity on LAN 1.
LAN 2	Flashing	There is network activity on LAN 2.
Overheat Alert	Solid	The temperature has exceeded the threshold.
Power Failure	Flashing	A power failure occurs in the power supply.

HDD LED Indicators:

Indicator	LED Status	Description
HDD Power	Solid	The hard disk is powered on and ready.
HDD Activity	Flashing	There is read or write activity.

Turn Off the Unit

The device can be turned off by the methods described below, and the **Power Status LED Indicator** will go off right after the device is turned off.

1. Shut down the system from **Windows Start**

2. Press down **Power Button** to turn the device off.

To completely cut off the power supply of this unit, press down the **Power Switch** to the side with "**O**" mark.

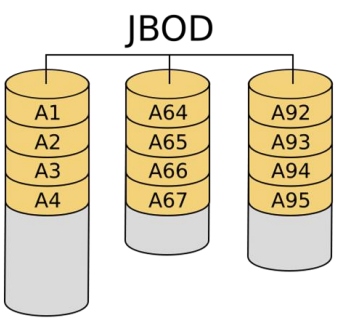
Get the Hard Disks Ready for Recording

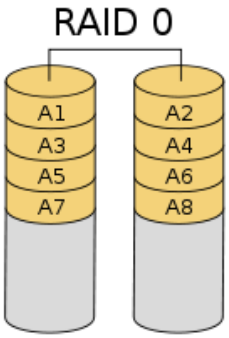
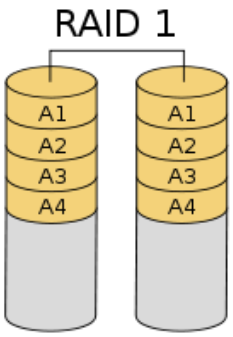
Before the installed hard disks and eSATA storage device can start recording, they must be initialized and recognized by Windows embedded 7 operating system. Besides regarding each hard disk as a single volume, INR is able to combine multiple hard disks as a one single volume of large storage size due to RAID (Redundant Array of Independent Disks) technology, and define how the data is stored on those hard disks regarding the protection against the physical failure of one or more hard disks. In this chapter, you will be provided with the knowledge of different RAID types and the instructions on RAID configurations to help you manage your storage system.

Software RAID

Windows 7 operating system provides built-in software RAID, and the software RAID task of Windows runs on the computer's CPU, requiring no extra hardware attached to the computer. In Windows, a single accessible storage file system is referred as a **Volume**. When you are making the volume, you will need to select the volume type, which basically corresponds to a certain RAID type. The supported volume types are listed below with descriptions for you so that you will be able to choose the suitable RAID type for your video surveillance project. After hard disks are installed correctly, use Windows **Disk Management** to create disk volumes, and configure software RAID on multiple disks in the mean time.

Volume Type Introduction

Volume Type	Description
Simple	This volume type is the most basic method to make one disk a single logical volume.
Spanned (JBOD)	This type is also called JBOD (Just a Bunch of Drives), combing two or more disks as a large single logical volume. This method does not offer any advantage in terms of reading / writing speeds, parity or redundancy but sacrifices no disk space because the total storage equals to the sum of the each individual disk storage. However, since the data is written to the physical disks sequentially, any failure of a single disk is likely to fail the whole array. 

Striped (RAID 0)	RAID 0 combines multiple hard drives into one larger volume. The data is split between these disks. Under this configuration every inserted disk will be used for storing data. No disks are used for data backup purposes. Should one of the disks be damaged, the recordings on all disks will be lost and are not recoverable, and the use of all remaining disks will be suspended until the broken disk has been replaced and the whole RAID configuration has been reset. 
Mirrored (RAID 1)	RAID 1 is a solution designed to make mirror copy of from one disk onto one or more disks for recovery purposes. In case of ACTi Standalone NVR servers, you need to have exactly 2 disks to configure RAID 1. Since the 2nd disk is used as a mirror of the first disk, the total available storage will be twice smaller compared to RAID 0. On the other hand, if one of the two disks fails then the system will still keep running on another disk without any problems. Once you replace the damaged hard disk, all the information will be copied from a healthy disk into the newly added disk, to recover a healthy RAID 1 condition. 

Volume Type Comparison

Volume Type	Simple	Spanned	Striped	Mirrored
Corresponding RAID Type		JBOD	RAID 0	RAID 1
Minimum Number of Disks required	1	2	2	2
Capacity	V	$V_1+V_2+...+V_N$	V_{min} x **N**	V_{min}
***Storage Efficiency**	★★★★★	★★★★★	★★★★★	★★★
Fault Tolerance	None	None	None	★★★★
Write Speed	★★★	★★★	★★★★★	★★★
Read Speed	★★★	★★★	★★★★★	★★★

N = the number of disks

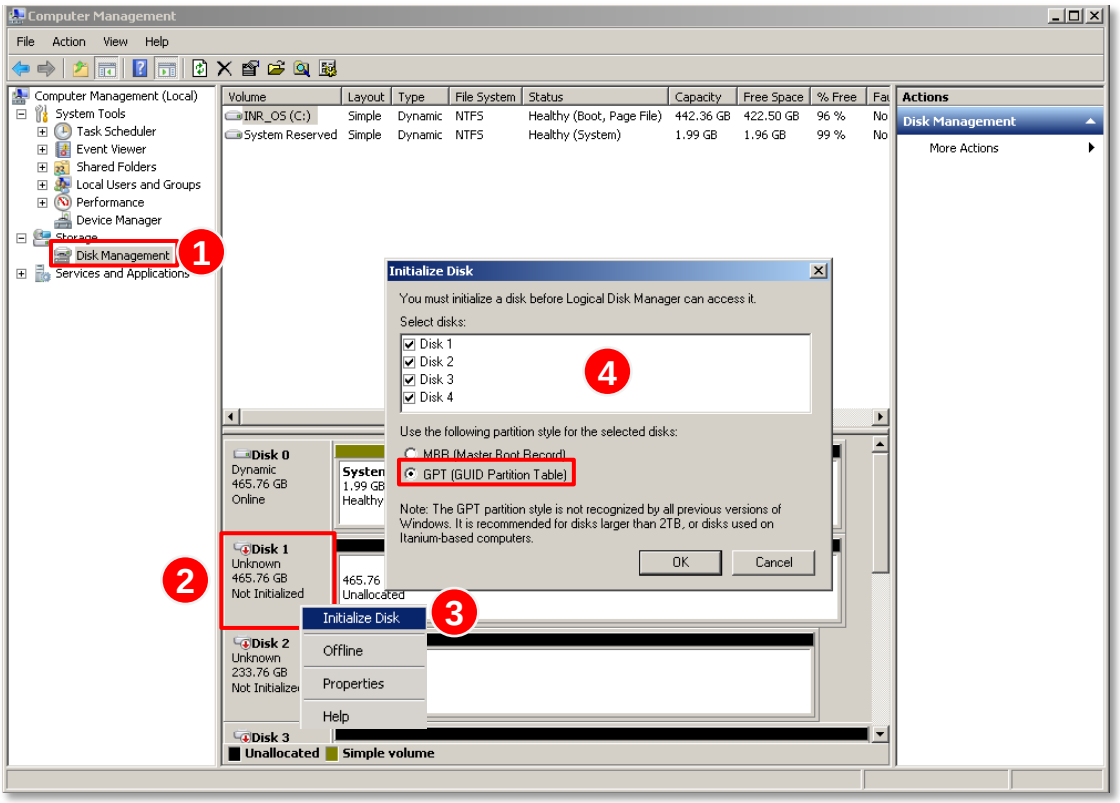
V_{min} = the volume of the disk with the smallest volume in the array

***This result is obtained based on the assumption that the disks are of the same volume size.

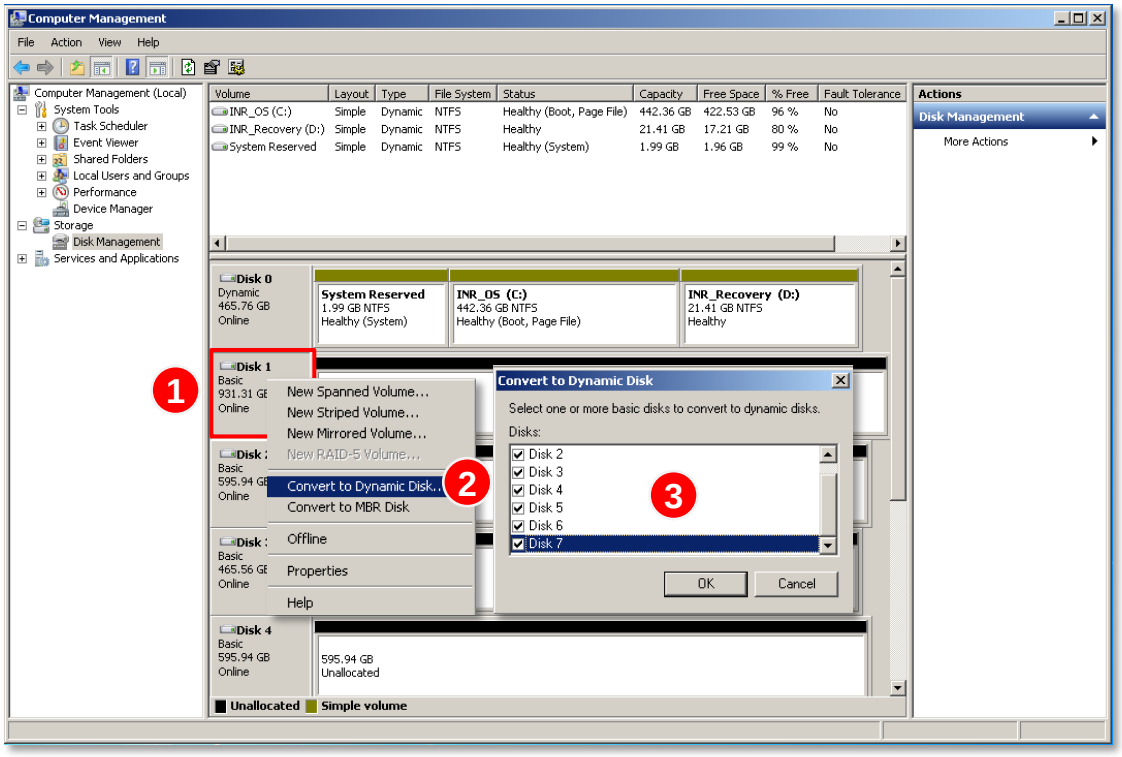
Create Volume and Configure Software RAID

1. Click **Window Start** , in **Windows Search Box**, input "**Computer Management**", and enter this utility.

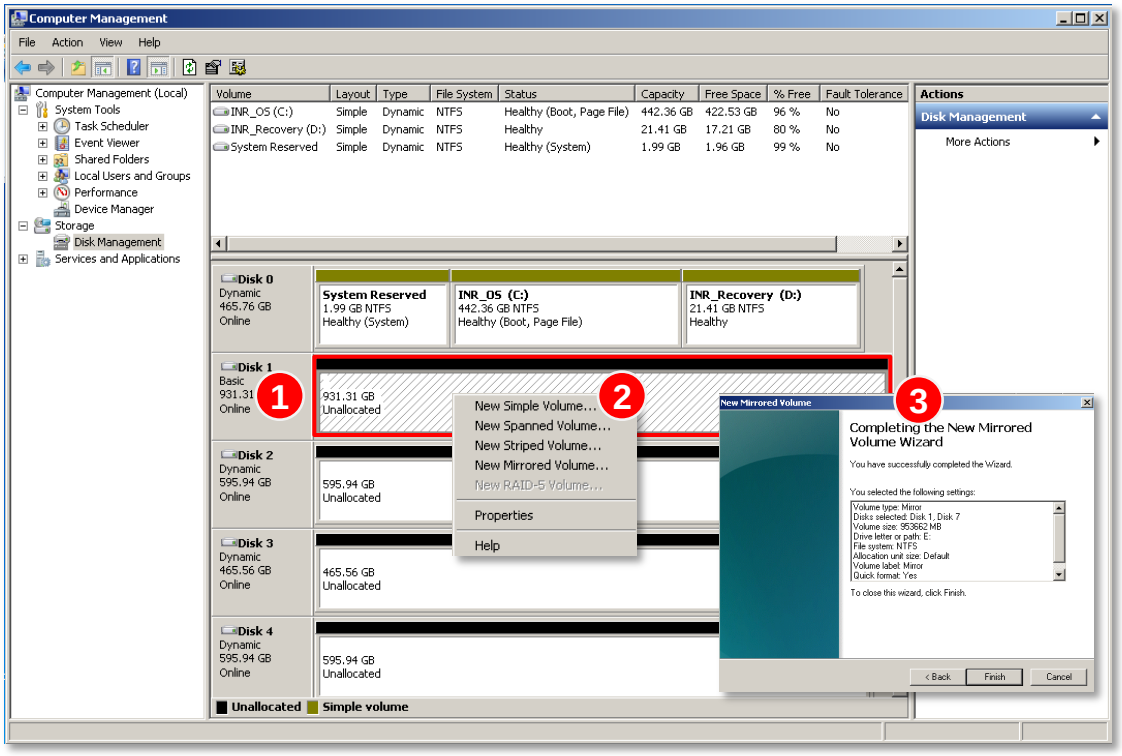
2. Select "**Disk Management**", right-click on a disk title and select "**Initialize Disk**". Check all the disks you have installed, choose "**GPT**" as the partition type and then click "**OK**".



3. Right-click on a disk title again, select "**Convert to Dynamic Disk…**", check all the installed disks and then click "**OK**".

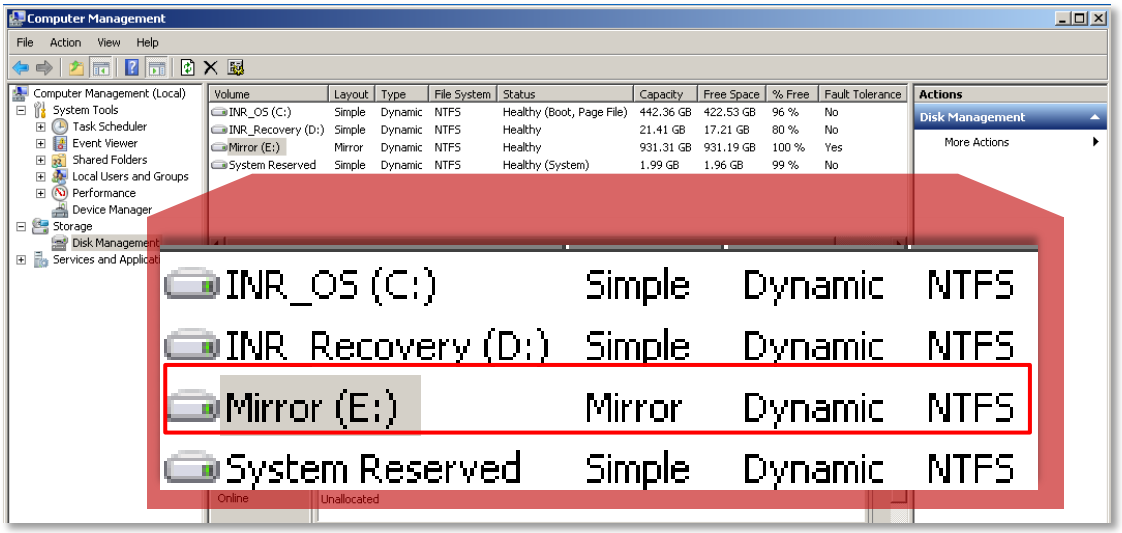


4. Right-click on a disk and select the volume type to make a new volume.



A **Volume Wizard** will come up to bring you through the configuration process. Make sure you assign the desired **Drive Letter** and **Volume Label** to the volume via the wizard.

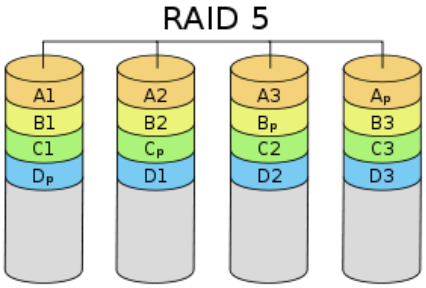
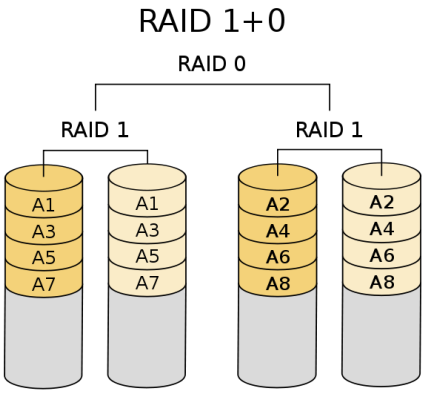
5. After the volume is created, this drive will be shown on **Volume list**, and is ready for recording. You may follow the instructions in Storage Management on page 103 to assign certain volumes to do the recording.


Computer Management
File Action View Help
Computer Management (Local)
System Tools
Task Scheduler
Event Viewer
Shared Folders
Local Users and Groups
Performance
Device Manager
Storage
Disk Management
Services and Applicat
Volume Layout Type File System Status Capacity Free Space % Free Fault Tolerance
INR_OS (C:) Simple Dynamic NTFS Healthy (Boot, Page File) 442.36 GB 422.53 GB 96 % No
INR_Recovery (D:) Simple Dynamic NTFS Healthy 21.41 GB 17.21 GB 80 % No
Mirror (E:) Mirror Dynamic NTFS Healthy 931.31 GB 931.19 GB 100 % Yes
System Reserved Simple Dynamic NTFS Healthy (System) 1.99 GB 1.96 GB 99 % No
Actions
Disk Management
More Actions
INR_OS (C:) Simple Dynamic NTFS
INR_Recovery (D:) Simple Dynamic NTFS
Mirror (E:) Mirror Dynamic NTFS
System Reserved Simple Dynamic NTFS
Online
Unallocated

Hardware RAID (for INR-420 Only)

With the purpose of achieving better performance and interoperability, **INR-420** is also designed with hardware RAID which does not require CPU resources to run the RAID task. Besides **JBOD**, **RAID 0** and **RAID 1**, INR-420's hardware RAID also supports **RAID 5** and **RAID 10**. The introductions of these two RAID types are as follows.

Introduction of RAID 5, RAID 10 and RAID 50

RAID Type	Description
RAID 5	RAID 5 is probably the most popular configuration of all because it provides both disk recovery options and quite efficient use of storage space. Furthermore, the more hard disks you add into RAID 5 configuration, the faster will be the writing and reading speed, for the similar reason as in case of RAID 0. In RAID 5 configuration, the data blocks are considered the same data group or a stripe. Certain special portion of data that is created based on the values of other data blocks for recovery purposes. Such value is called parity. The parity information is distributed and stored across each hard drive. If any of the hard drive fails, the array enters downgrade mode, all that you need to do is replace the failed disk with a new one. 
RAID 10	RAID 10 (also called 1+0) combines RAID 1 and RAID 0 configurations – think of it as a group of mirrored disks. From that it is possible to conclude that there has to be even number of disks and at least two pairs. 

Hardware RAID Comparison

RAID Type	JBOD	RAID 0	RAID 1	RAID 5	RAID 10
Minimum Number of Disks required	2	2	2	3	4
Capacity	$V_1+V_2+\ldots+V_N$	V_{min} x **N**	V_{min}	V_{min} x (**N**-1)	V_{min} x (**N**/2)
***Storage Efficiency**	★★★★★	★★★★★	★★*	★★★★	★★*
Fault Tolerance	None	None	★★★★	★★★	★★★★
Write Speed	★★*	★★★★★	★★*	★★★★	★★★★*
Read Speed	★★*	★★★★★	★★★	★★★★	★★★★*

N = the number of disks

V_{min} = the volume of the disk with the smallest volume in the array

***The result is obtained based on the assumption that the disks are of the same volume size.

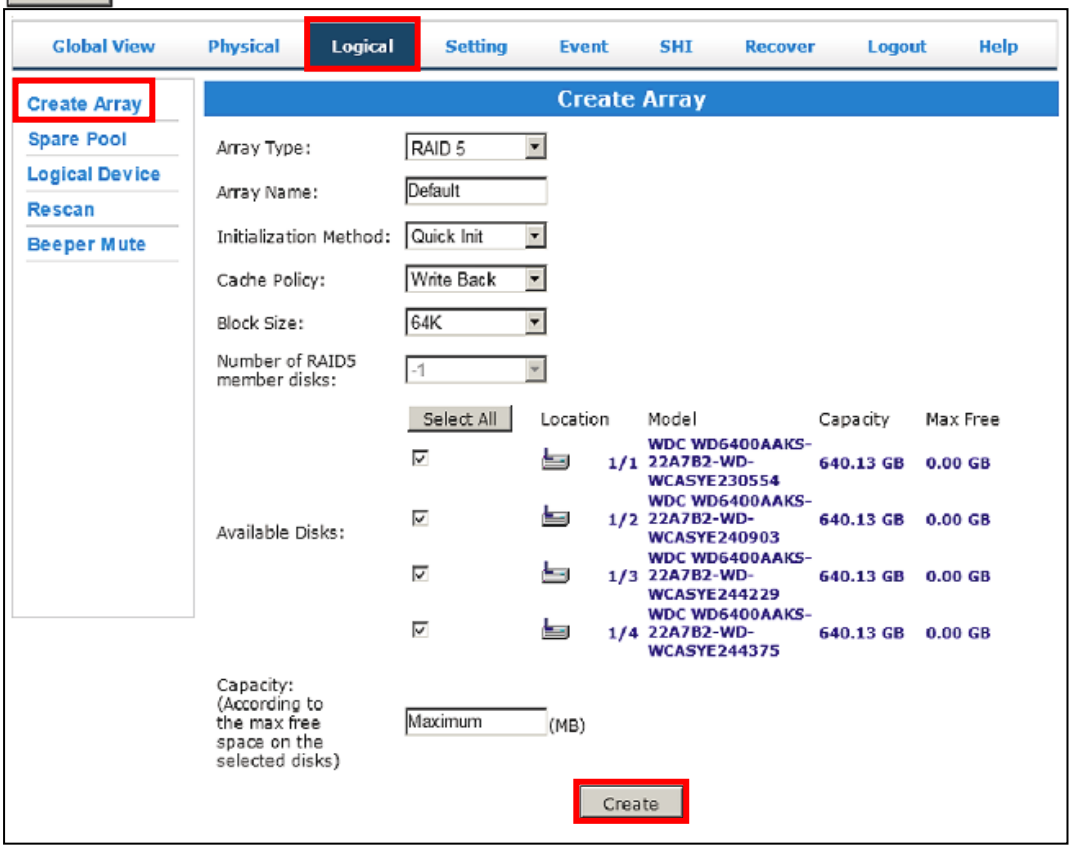
Configure Hardware RAID

Please follow the steps described below to configure hardware RAID with the bundled software **HighPoint Web RAID**.

1. On **Windows Desktop**, double click the shortcut to initialize **HighPoint Web RAID Management Software**.

2. Login with default username and password.
   User Name: RAID
   Password: hpt

3. Go to **Logical** and select **Create Array**. Configure the desired setting, and then click Create to create an array.



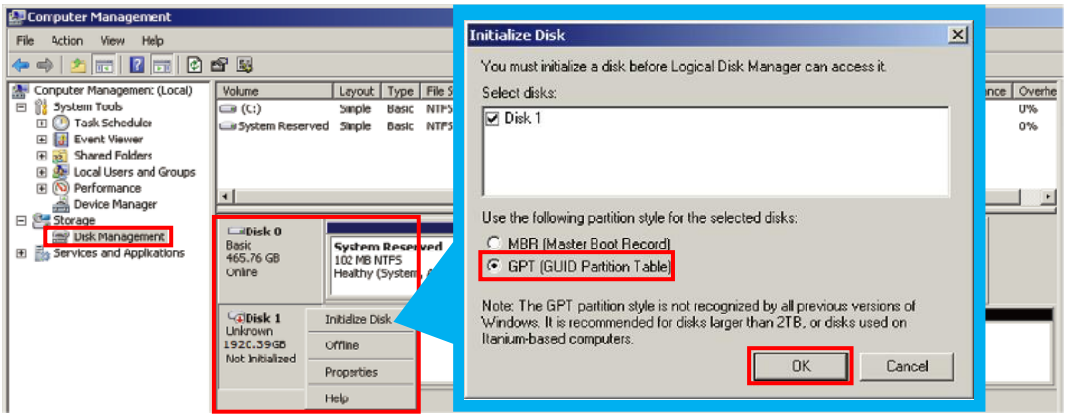
As for the **Available Disks**, It is recommended to choose disks of the same model and capacity to make an array.

4. Go to **Logical** again, and the newly created array will appear on **Logical Device Information** list.

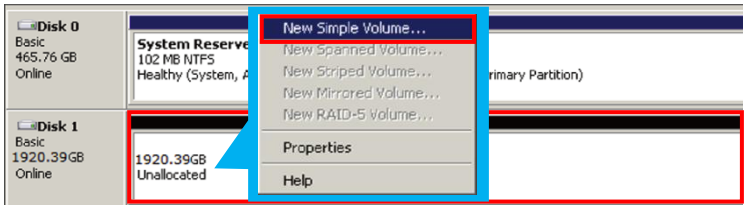
Now, use Windows **Disk Management** to make the newly created array to be recognized as a **Volume** by Windows operating system.

5. In **Windows Search Box**, input "Computer Management" and enter this utility.

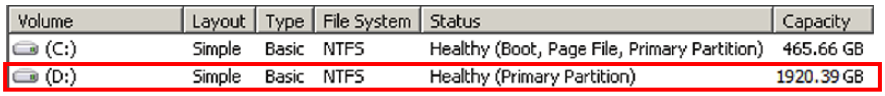
6. Select "**Disk Management**", right-click on a disk title, select "**Initialize Disk**", then choose **GPT** as the partition style and click "OK".



7. Right-click on an initialized disk and select **New Simple Volume** to make a new volume. Make sure that you assign the desired Drive Letter and Volume label to this volume via this wizard. Repeat this step to create other volumes if needed.



8. After the volume is created, it will be shown on the volume list, and is ready for recording.



Volume	Layout	Type	File System	Status	Capacity
(C:)	Simple	Basic	NTFS	Healthy (Boot, Page File, Primary Partition)	465.66 GB
(D:)	Simple	Basic	NTFS	Healthy (Primary Partition)	1920.39 GB

For more details and instructions on **HighPoint Web RAID Management** software, please refer to HighPoint online help document at **http://www.highpoint-tech.com/help/**.

Observe Disk Status

It may happen that one of your disks goes into **failed** status after the NVR system starts recording for a long period. Mostly, a disk does not fail all of a sudden but because the number of bad sectors on it has exceeded the minimum required level to maintain normal operation. On NVR Live View interface, the recording status and system events can help you make an initial assessment of the overall disk condition.

- On **Device list**, if the recording is proceeding normally, the red "recording" icon REC will appear next to the device icon. <u>If all the icons are missing when the NVR is supposed to perform schedule recording</u>, your storage disk might have gone into abnormal status.

- **Event list** will also display two kinds of abnormal disk status – **Disk Full** and **Disk Not Found**.

You may take the following steps to make a simple diagnosis.

1. **Confirm the schedule-recording setting**

   Go to **Setup** page → **Schedule** tab, and modify the recording schedule if it is not correctly configured.

2. **Check Disk Drive List**

   Go to **Setup** page → **Storage** tab.

   - If the disk drive is missing from **Disk Drive List**, please shut down the NVR and re-install the hard drive.
   - If the disk is full, a warning icon will appear next to the **Drive**, please configure the recording rule setting. The NVR server will start recording again after the new setting is applied.

System Installation Check Lis

Before Starting				
Item		**Task**	**Description**	**Reference**
1	☐	Prepare software license	INR comes with 64-channel free license that are already activated. For additional channels, please purchase the license from your system supplier and get the license information ready before activation.	License and Activation on page 36
2	☐	Set up Active Directory (optional)	To add users through the Active Directory service, please make sure an Active Directory server is available on your domain.	
Connecting the Devices				
Item		**Task**	**Description**	**Reference**
3	☐	Get the IP cameras and video servers connected and ready for use	Finish the installation and basic settings (IP address, usernames, passwords) of all IP cameras or video servers.	
4	☐	Connect external devices to the NVR server	Attach necessary external hardware peripherals such as a keyboard, a mouse, a joystick, or a microphone to the NVR server.	Joystick on page 129
Starting the unit				
Item		**Task**	**Description**	**Reference**
5	☐	Powering on the unit	Press the Power Button to power on the NVR server, and enter Windows after the system finishes booting up.	
6	☐	Login to the system	Login to the NVR system with default account and pas[sword.	Log In to the System on page 46
7	☐	Activate the license (When required number of channels exceeds 64)	Activate your license key to get your required number of channels ready for adding devices.	License and Activation on page 36
System Setup				
Item		**Task**	**Description**	**Reference**
8	☐	Configure the storage Settings	Activate the disks for recordings and make sure the total size is sufficient, and how many days the recordings are kept on disk.	Storage Management on page 103
9	☐	Add devices to the NVR server	Add devices and configure camera settings: camera name, video/motion/PTZ settings.	Add Devices on page 55; Configure Device Settings on page 66
10	☐	Configure recording schedule	**By default, each device will start 7/24 schedule recording as soon as it is added**. Set recording schedule for each device.	Schedule Recordings on page 81

11	☐	Configure e-mail & FTP settings	Complete the Email or FTP settings and test if NVR server succeeds in sending emails and uploading files. This step is necessary if you will use these functions for Event Handling.	How to Setup SMTP Settings for Event Rules on page 97 ; How to Setup FTP Settings for Event Rules on page 98
12	☐	Configure event rules	Set up the desired event rules.	How to Edit an Event Rule on page 92
13	☐	Create users accounts and groups	Configure User Group permissions and create required User Accounts.	Manage User Groups/ Users on page 105
Live View Setup				
Item		**Task**	**Description**	**Reference**
14	☐	Create Views for Users	Customize and save views for Live View screen.	Customize Views on page 111
Back up System Settings				
Item		**Task**	**Description**	**Reference**
15	☐	Create backup of system settings	Create a backup file of current system settings for future re-installation or in case of critical system failure.	Back Up System Data on page 136
Post-installation Validation				
Item		**Item**	**Description**	**Reference**
16	☐	Live Preview basic operations	Make sure if user is able to see the live view with saved layouts and perform basic operations (e.g. PTZ controls or instant playback).	User's Manual
17	☐	Schedule Recording	Make sure the disk is recording normally according to the schedule.	
18	☐	Event Handling	Check if the expected actions (e.g. recording, alarms or email notification, etc) are correctly triggered by events.	
19	☐	User Access	Make sure User can access NVR with right account/password, and perform operations based on given user rights.	
20	☐	Playback	Make sure user can perform playback and video search, and the export function can generate viewable files to designated folder.	

Getting Started

License and Activation

Before managing the IP cameras via an NVR server, you will be required to purchase the license for the channels on the NVR server, and activate the license before connecting to the IP cameras. The **License Key**, provided by ACTi sales representative once your purchase of license is carried out, will be used to activate the license. After the license activation, the channels on the NVR server will automatically become available.

Aside from ACTi brand devices, INR-410/420 is able to support other vendors' devices. The channels for ACTi brand devices and for non-ACTi brand devices are licensed by different license types.

- Standard License: Channels for ACTi brand devices

- CDP License: Channels for other vendors' devices

(For supported non-ACTi cameras list, please refer to http://www.acti.com/3rdpartycamera)

Please be aware of the following information about the license:

1. The license is cumulative and perpetual.
2. The license is not version-specific, and upgrading software version will not influence the existing license you have activated on INR-410/420.
3. The number of CDP licensed channels (for non-ACTi brand devices) and that of standard licensed channels (for ACTi devices) are counted separately.
4. Any device added through ONVIF (either ACTi or non-ACTi devices) will also need to be licensed. The license type used will solely be based on the brand of the device.
5. In INR-410/420, there are **64** standard licensed channels which are already activated in the NVR system. The maximum number of the devices (ACTi brand + non-ACTi brands) that can be managed by INR-410/420 is **200**.
6. After activating CDP license, please follow the instructions in Add Non-ACTi Cameras on page 62 to manually add those non-ACTi cameras to INR-410/420.

License activation is the process of unlocking the channels on NVR product with the received **License Key**. **License Key** is a serial number delivered as a printed card or an E-mail after the purchase is carried out.

During license activation, the **License Key** is matched against the MAC address of the Network Interface Card (NIC) on the NVR server. Once the license key is used by the NVR server with the specific NIC, it cannot be used by another NVR server with a different NIC. This matching record will be stored on the ACTi license data server.

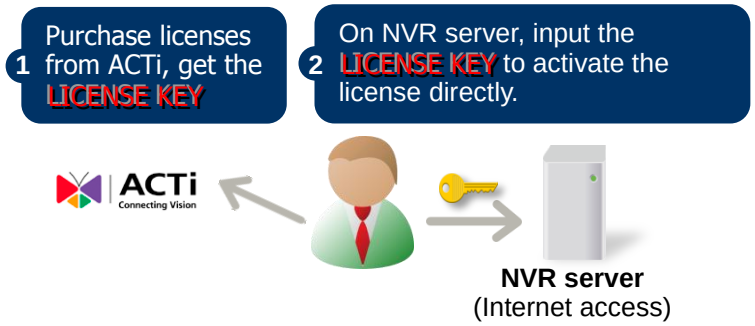
Note

Although certain fisheye camera view modes (e.g. **Quad** mode) display multiple regions in a view, they are still counted as one single channel in terms of licensing.

There are two ways to activate the licenses depending on your NVR network condition: **Online Activation** and **Offline Activation**.

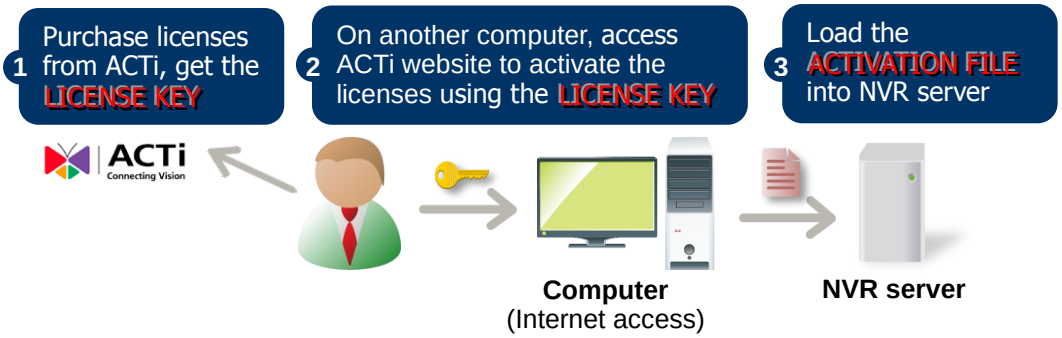
Online Activation

If your NVR server has available Internet access, choose online activation.


1 Purchase licenses from ACTi, get the LICENSE KEY
2 On NVR server, input the LICENSE KEY to activate the license directly.
ACTi
Connecting Vision
NVR server
(Internet access)

Offline Activation

Offline activation does not require Internet access for the NVR server. It is used when the NVR server is located in a network not connected to public Internet (e.g. in a military base). You will need to get an activation file from another computer and transfer it to the NVR server.

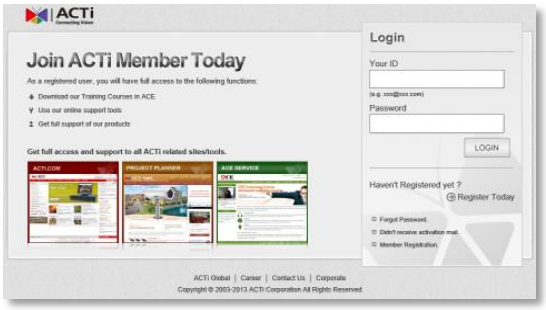

1 Purchase licenses from ACTi, get the LICENSE KEY
2 On another computer, access ACTi website to activate the licenses using the LICENSE KEY
3 Load the ACTIVATION FILE into NVR server
ACTi
Connecting Vision
Computer
(Internet access)
NVR server

Step-by-step Activation Process

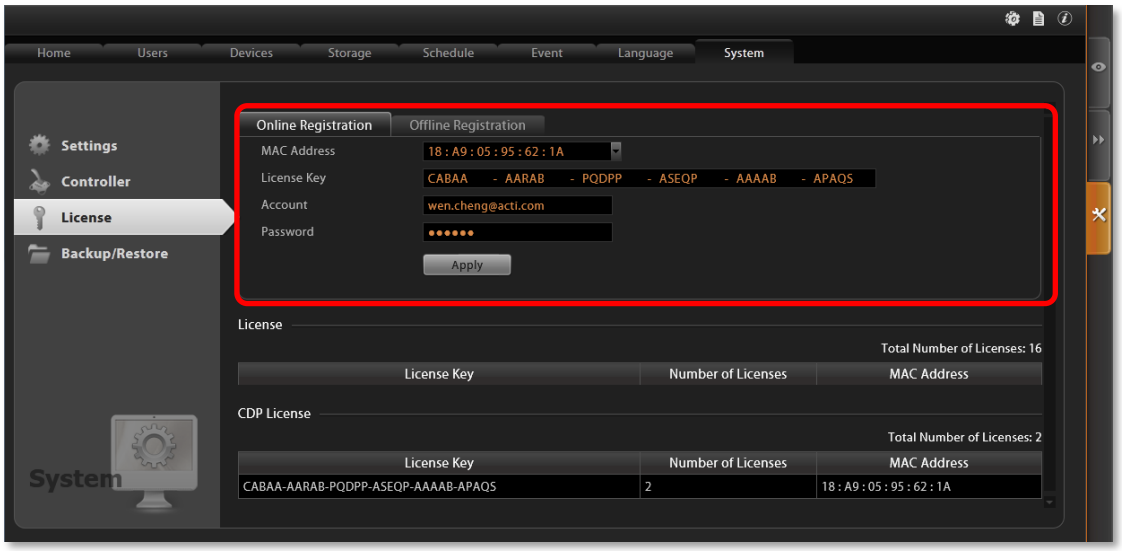
Based on the network conditions of your site, follow Online Activation SOP or Offline Activation SOP to activate your license.

Online Activation SOP

Step 1: Membership ID in **ACTi Member Center** is required for activation. Register one for free at http://member.acti.com/

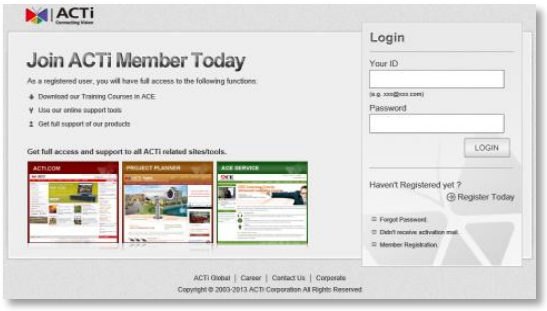


Step 2: Login to the NVR server, and go to **Setup** page→**System** tab→**License**→"**Online Registration**". Select the **MAC Address**, enter your **License Key**, ACTi member **Account** and **Password**, and then click "**Apply**". The NVR server will connect to the license data server via Internet to register the license key, and unlock the channels.

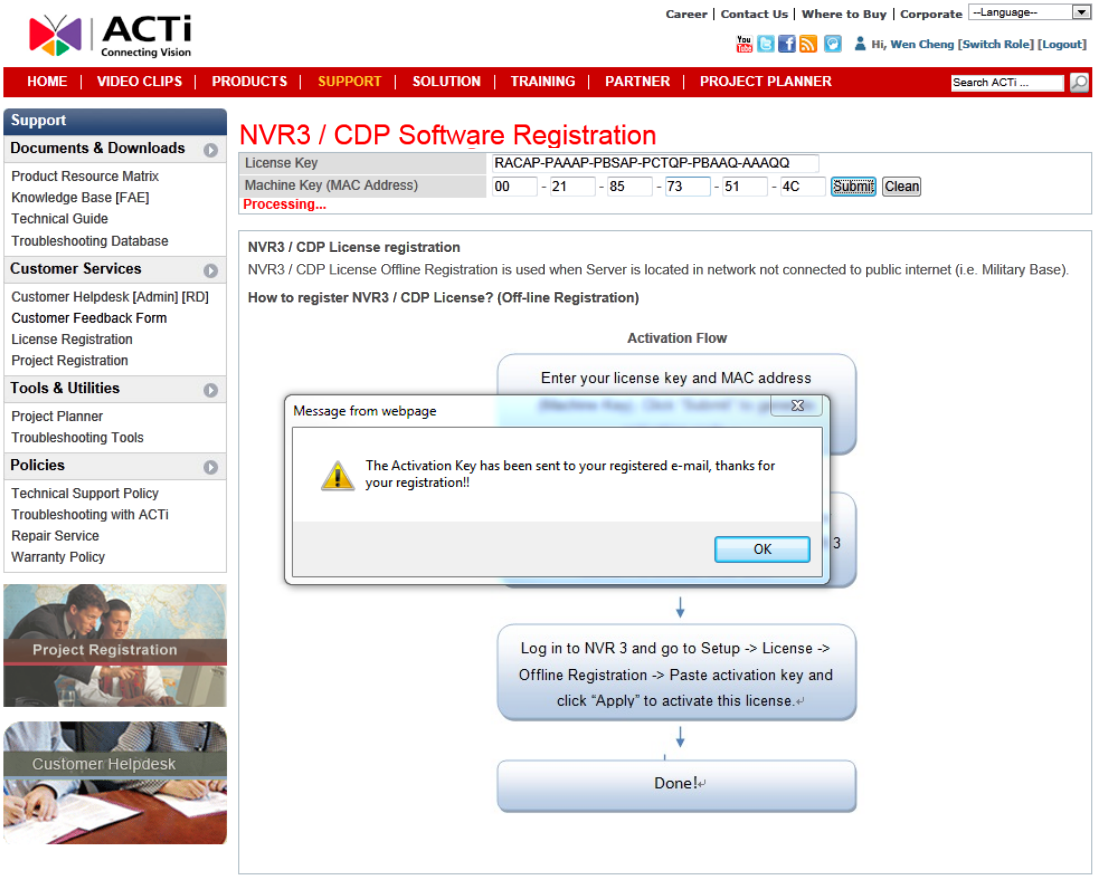


Offline Activation SOP

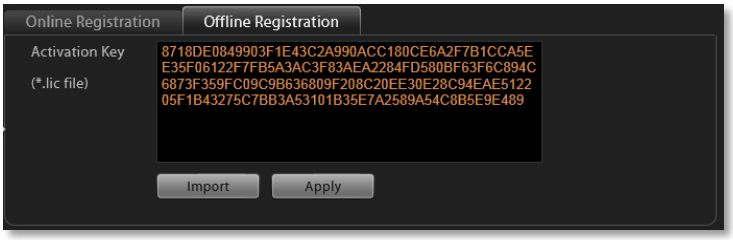
Step 1: Membership ID in **ACTi Member Center** is required for activation. Register one for free at http://member.acti.com/



Step 2: Access http://www.acti.com/support/LicenseMgt/NVR3_registration.asp, enter the **License Key** and the **MAC address** of the NVR server, and then click "**Submit**". An E-mail with activation code file (.lic) will be sent to your registered E-mail account.

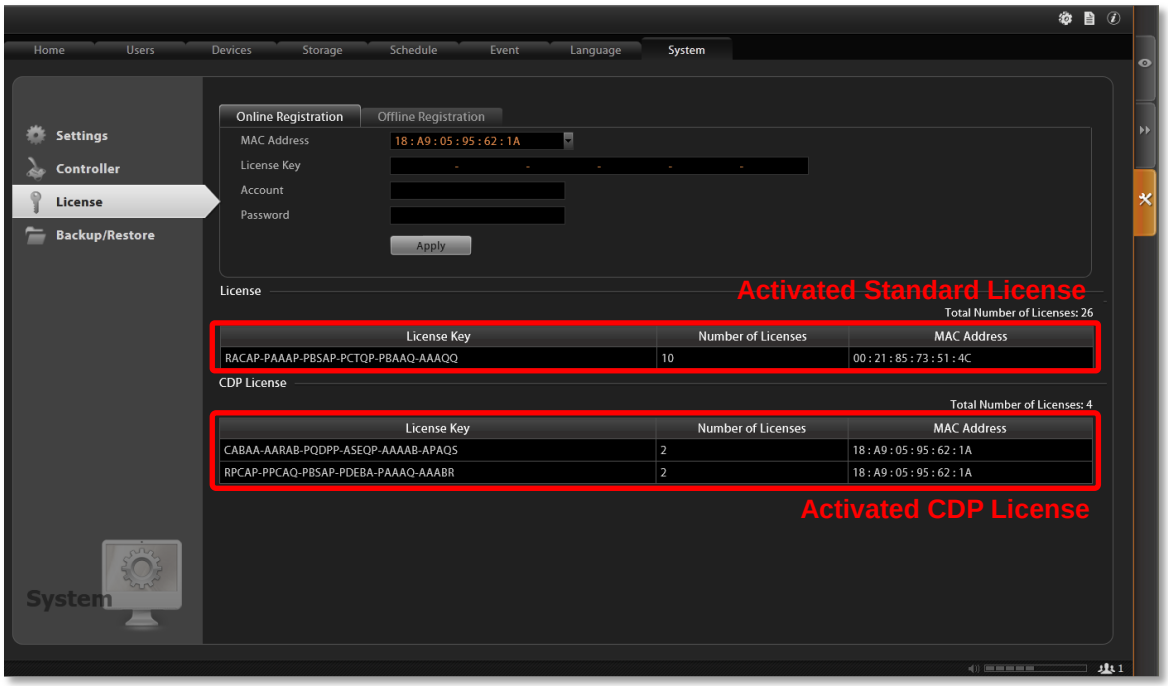

Career | Contact Us | Where to Buy | Corporate
Hi, Wen Cheng [Switch Role] [Logout]
HOME | VIDEO CLIPS | PRODUCTS | SUPPORT | SOLUTION | TRAINING | PARTNER | PROJECT PLANNER
Support
Documents & Downloads
Product Resource Matrix
Knowledge Base [FAE]
Technical Guide
Troubleshooting Database
Customer Services
Customer Helpdesk [Admin] [RD]
Customer Feedback Form
License Registration
Project Registration
Tools & Utilities
Project Planner
Troubleshooting Tools
Policies
Technical Support Policy
Troubleshooting with ACTi
Repair Service
Warranty Policy
Project Registration
Customer Helpdesk
NVR3 / CDP Software Registration
License Key
RACAP-PAAAP-PBSAP-PCTQP-PBAAQ-AAAQQ
Machine Key (MAC Address)
00 - 21 - 85 - 73 - 51 - 4C
Submit
Clean
Processing...
NVR3 / CDP License registration
NVR3 / CDP License Offline Registration is used when Server is located in network not connected to public internet (i.e. Military Base).
How to register NVR3 / CDP License? (Off-line Registration)
Activation Flow
Enter your license key and MAC address
Message from webpage
The Activation Key has been sent to your registered e-mail, thanks for your registration!!
OK
Log in to NVR 3 and go to Setup -> License -> Offline Registration -> Paste activation key and click "Apply" to activate this license.
Done!

Step 3: Login to the NVR server from local or via web client. Go to **Setup** page→ **System** tab → **License** → "**Offline Registration**"→ click "**Import**" and upload the license file(.lic). Click "**Apply**" to activate this license.



Verify Your License

Once your license is successfully activated, the license information will be shown on **License** page.



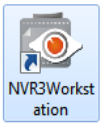
Tip

How to find MAC Address

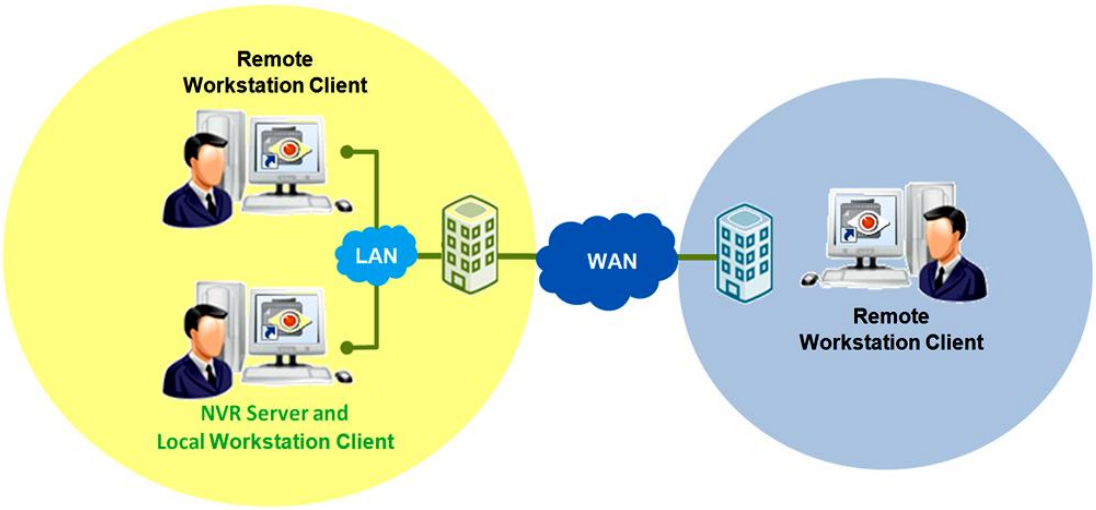
1. Click **Windows Start**, in the run box on **Start** menu, input "**cmd**".
2. Execute the **cmd** program, and input the command "**ipconfig /all**" or "**getmac**"
3. The MAC address will be referred to as the **Physical Address**, made up of 12 characters, e.g. **00-1E-65-FE-8E-98**.

Log In to the System

Access the NVR Server via NVR3 Workstation

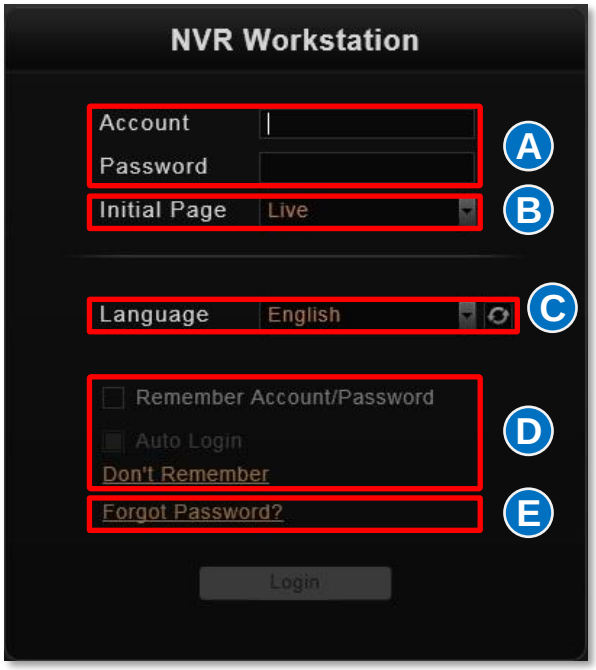


NVR3 Workstation includes a set of programs that provide the interface between users and the NVR server. In INR-410/420, this software is already installed, and will start automatically after you login to Windows. You can also install this software on the remote client computer to access the NVR server via network. You can download this software on ACTi website at http://www.acti.com/product/detail/Standalone_NVR/INR-410 or http://www.acti.com/product/detail/Standalone_NVR/INR-420, and it is wrapped together with the NVR 3.0 system software. For the instructions on the installation of this software on the client computer, please refer to Workstation Installation and Upgrade on page 134.



Local Workstation Client Login

Local Workstation Client refers to the user who runs NVR3 Workstation on the NVR server to log in to the NVR system. The login process is described as follows.



A. Enter Account & Password

Account (non case-sensitive)

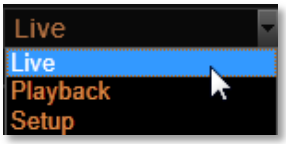
Admin (default)

Password (case-sensitive)

123456 (default)

B. Choose the Initial Page

The user interface consists of three main module screens, **Live View**, **Playback** and **Setup**. You may choose one where you would like to enter after login. Default is **Live View** screen.



C. Language

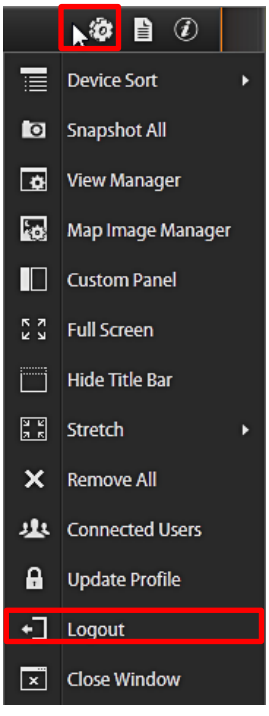
Choose a UI language from the dropdown list.

D. Remember Login Information and Auto Login

To have **NVR3 Workstation** remember the **Account**, **Password, Initial Page** and UI **Language**, simply check "**Remember login info**". Click "**Don't Remember**" will clear your input text and reset to default. **If the NVR server or remote client computer may be accessed by someone else, you might consider not to use this function**.

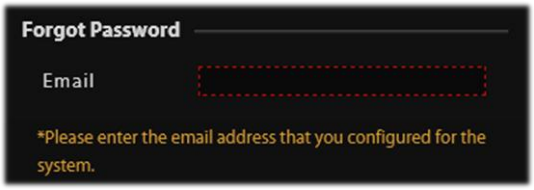
To automatically login to the NVR system, please check both "**Remember login info**" and "**Auto Login**" to skip the Login page. **If the NVR server or remote client computer may be accessed by someone else, you might consider not to use this function**.

To cancel auto-login, on title bar, click → "**Logout**" to return to login page, and this function will be cancelled.



E. Retrieve the Forgotten Password

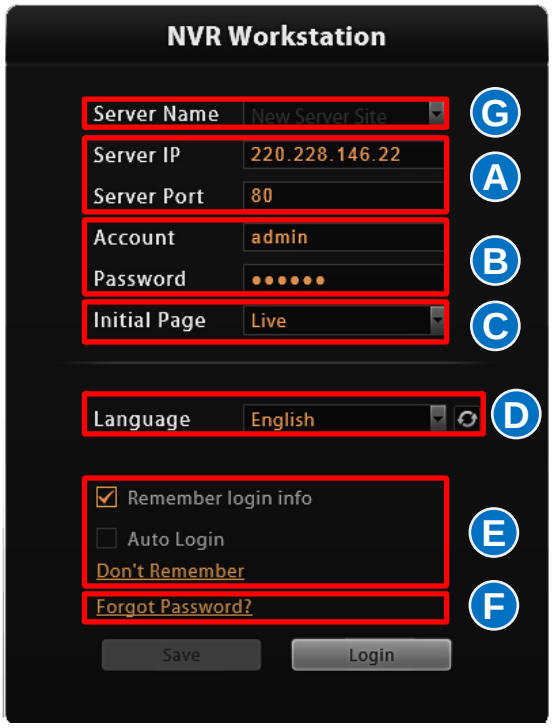
The NVR server can send the password of the User's account to the saved email address. To have users be able to use this service, please make sure (1) the SMTP settings have been configured (refer to How to Setup SMTP Settings for Event Rules on page 97) and (2) a valid email address has previously been saved in **Setup** page → **Users** tab → User list.



The email address input in **Forgot Password** window should match the one under your User account saved in the NVR server.

Remote Workstation Client Login

Remote Workstation Client refers to the user who runs NVR3 Workstation on a computer rather than the NVR server, and tries to reach the NVR server via network. The login process is described as follows.



A. Server IP & Server Port

In **Server IP** field, please input the LAN or WAN IP address of the NVR server.

In **Server Port** field, key in the port number. The default value is 80**.**

B. Enter Account & Password

Account (non case-sensitive)

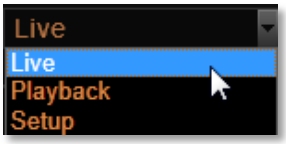
Admin (default)

Password (case-sensitive)

123456 (default)

C. Choose the Initial Page

The user interface consists of three main module screens, **Live View**, **Playback** and **Setup**. You may choose one where you would like to enter after login. Default is **Live View** screen.

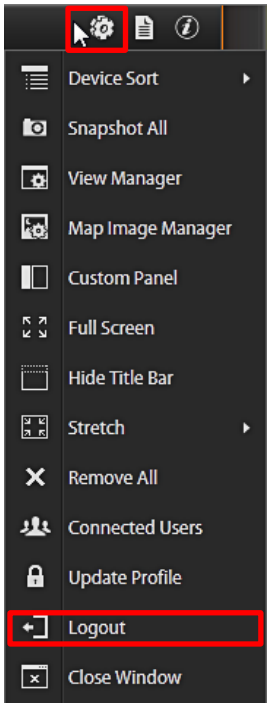


D. Language

Choose a UI language from the dropdown list.

E. Remember Login Information and Auto Login

To have **NVR3 Workstation** remember the **Account**, **Password, Initial Page** and UI **Language**, simply check "**Remember login info**". Click "**Don't Remember**" will clear your input text and reset to default. **If the NVR server or remote client computer may be accessed by someone else, you might consider not to use this function**.



To automatically login to the NVR system, please check both "**Remember login info**" and "**Auto Login**" to skip the Login page. **If the NVR server or remote client computer may be accessed by someone else, you might consider not to use this function**.

To cancel auto-login, on title bar, click → "**Logout**" to return to login page, and this function will be cancelled.

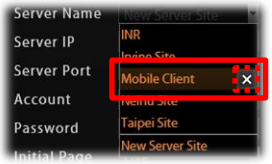
F. Retrieve the Forgotten Password

Please refer to E. Retrieve the Forgotten Password on page 43

G. Server Name/Server Sites List

NVR3 Workstation can remember multiple server sites and their login settings and show the site lists on **Login** window. To add a new site:

1. Click in the **Server Name** box and input the server site name.
2. Fill in the other fields. If you disable the "**Remember login info**", then only the **Server Name**, **Server IP** and **Server Port** of this server site will be remembered.
3. Click "**Save**".
4. After a server site is saved, it will be shown on **Server Name** dropdown list. You may click on its name to enter its Login wind or to delete it from the list.



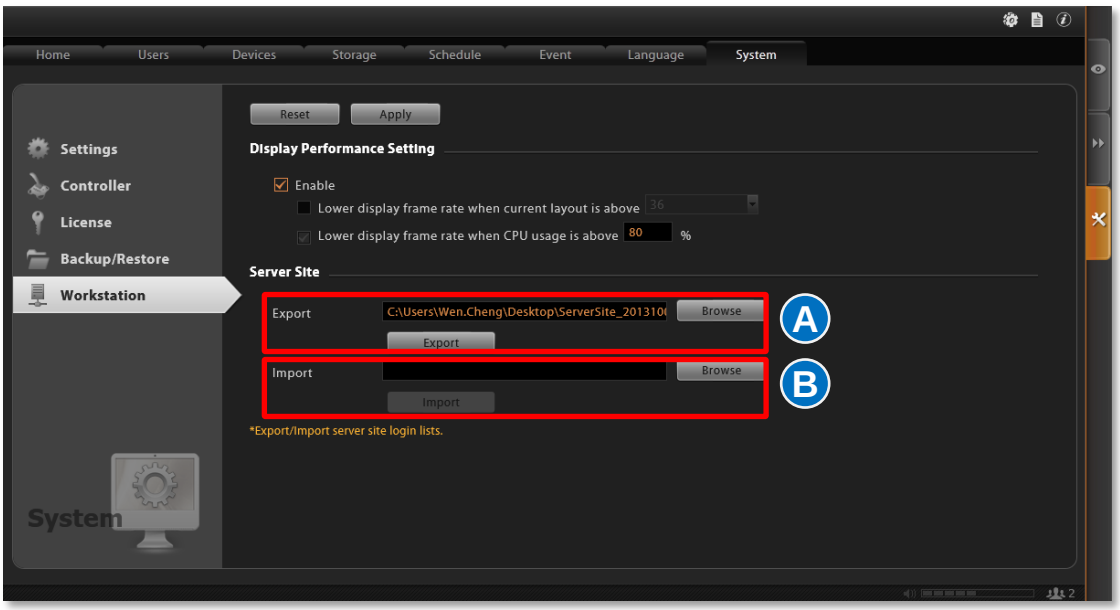
5. You can export the saved server sites, or import it to another Workstation client computer. Access the NVR server via **NVR3 Workstation**, go to **Setup** page → **System** tab → **Workstation**.

A. Export current server sites list

Click "**Browse**" to select a folder to save the list, and then click "**Export**". This file will be saved as an *.xml file.

B. Import a server site list

Click "**Browse**" to select the *.xml file, and then click "**Import**". The server sites will appear in **Server Name** dropdown list on **Login** window of your next login.

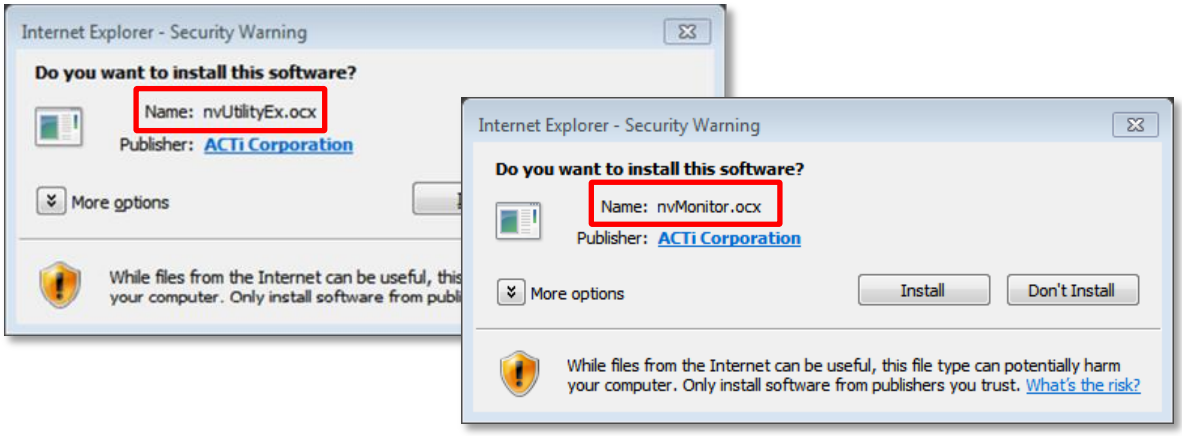


Access the NVR Server via Internet Explorer

In addition to NVR3 Workstation, you can also log in to the NVR system with Internet Explorer (IE). If you open the IE browser on the NVR server, you will be directed to the NVR system Login page immediately. If you are connecting to the NVR server as a remote client, please type the NVR server's LAN or WAN IP address, or domain name in the URL box. Remember to append a colon and the port number after the hostname or IP address.

Accept ActiveX Controls Installation Requests

NVR 3.0 system interface requires the add-on ActiveX Control components, please make sure browser's security settings allow ActiveX controls to be downloaded and installed. When your browser asks if you allow ACTi Corporation's add-on components to run, please allow.

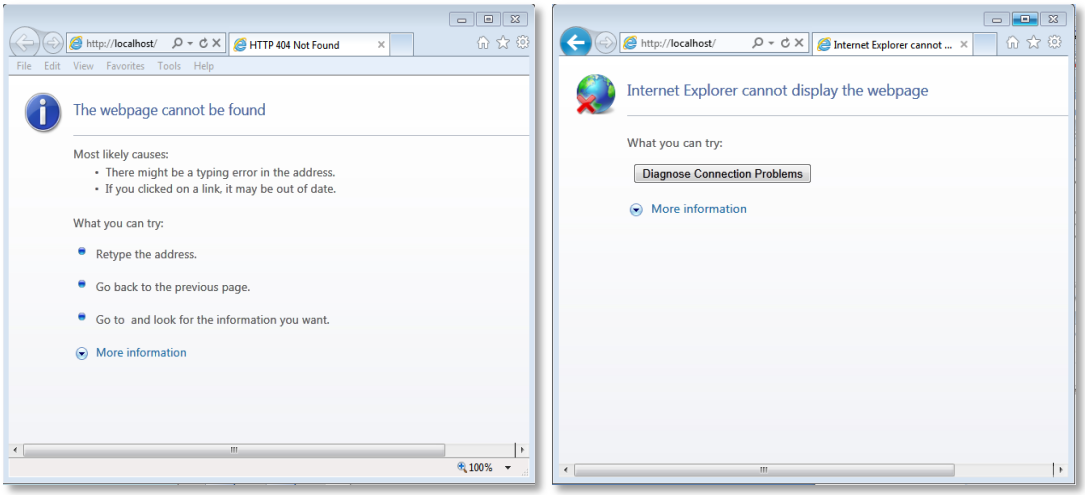

Internet Explorer - Security Warning
Do you want to install this software?
Name: nvUtilityEx.ocx
Publisher: ACTi Corporation
More options
While files from the Internet can be useful, this
your computer. Only install software from publi
Internet Explorer - Security Warning
Do you want to install this software?
Name: nvMonitor.ocx
Publisher: ACTi Corporation
More options
Install
Don't Install
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?

Log in Failure Troubleshooting

Once you confront with problems accessing the NVR server, refer to the possible conditions below and follow the instruction to solve your issues.

Condition 1: Why can't I access NVR server via web browser?

After typing in the correct NVR server IP, if you cannot access NVR Login page, you may get the below browser screens:


http://localhost/
HTTP 404 Not Found
File Edit View Favorites Tools Help
The webpage cannot be found
Most likely causes:
There might be a typing error in the address.
If you clicked on a link, it may be out of date.
What you can try:
Retype the address.
Go back to the previous page.
Go to and look for the information you want.
More information
100%
http://localhost/
Internet Explorer cannot ...
Internet Explorer cannot display the webpage
What you can try:
Diagnose Connection Problems
More information

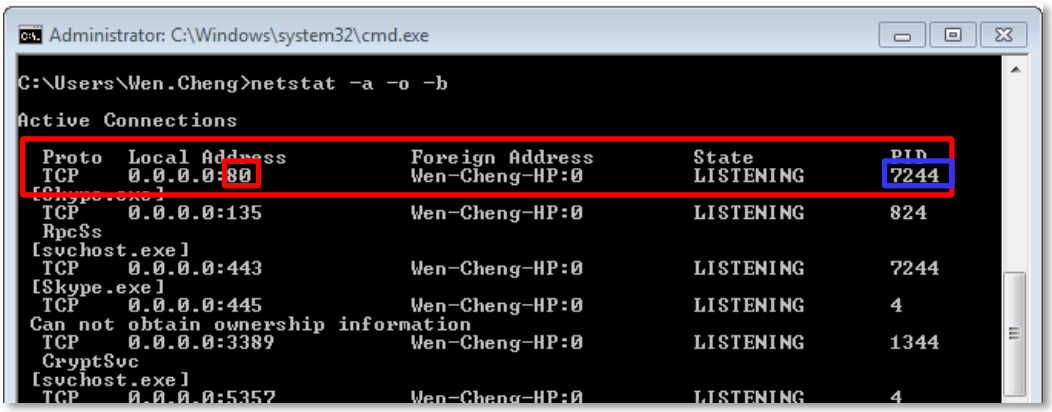
Cause 1: The NVR server is not ready

Solution: It may happen when you just start the NVR server and it is still booting up. Please wait a few seconds and connect again.

Cause 2: The NVR server is not able to respond to your request through current path because port 80 has been seized by another service running on server computer. This may happen when that service is executed right before the NVR server starts its services.

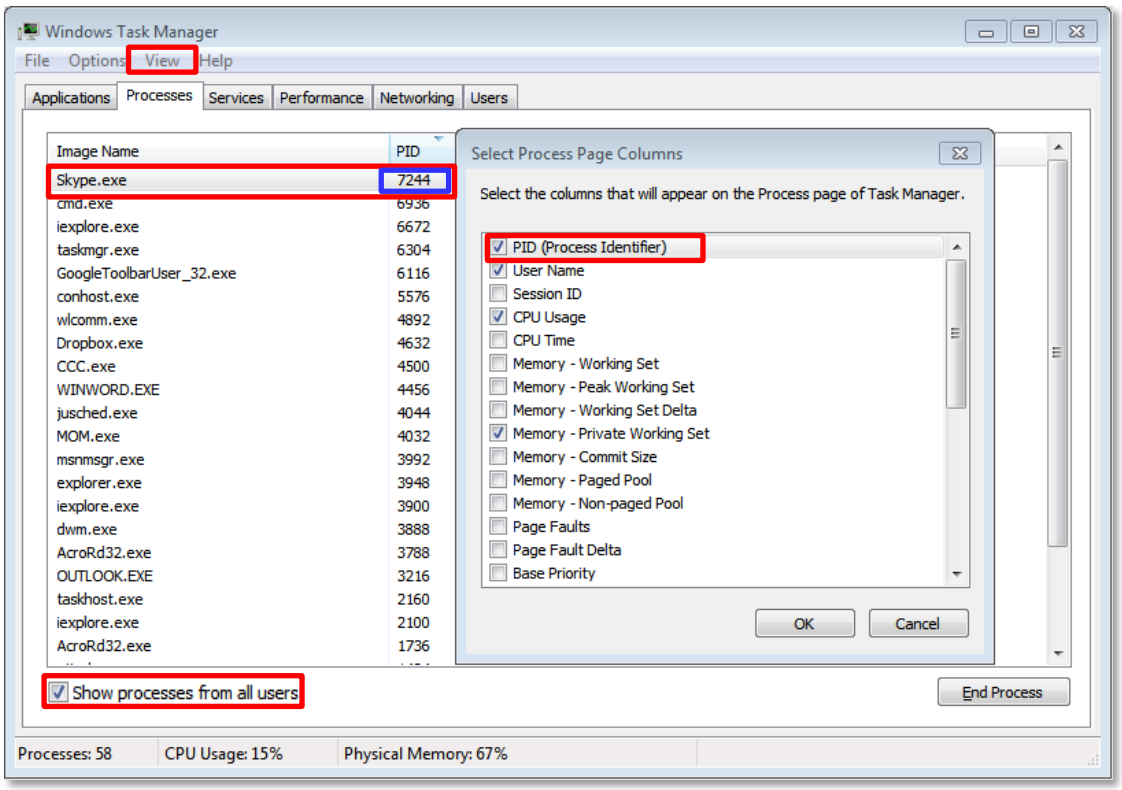
Solution: Please check if there is another service using port 80 right now, and change the setting in that program to release port 80 for the NVR server. Below are the steps to find the service:

1. Please click on "**Windows Start**" (Windows-Logo) , then enter "**cmd.exe**" in the run box and execute it.
2. Input the command "**netstat -a -o -b**". You will be provided with the ports in use and the services using them. Find the **Local Address** that has taken port **80**, and the **PID** number.



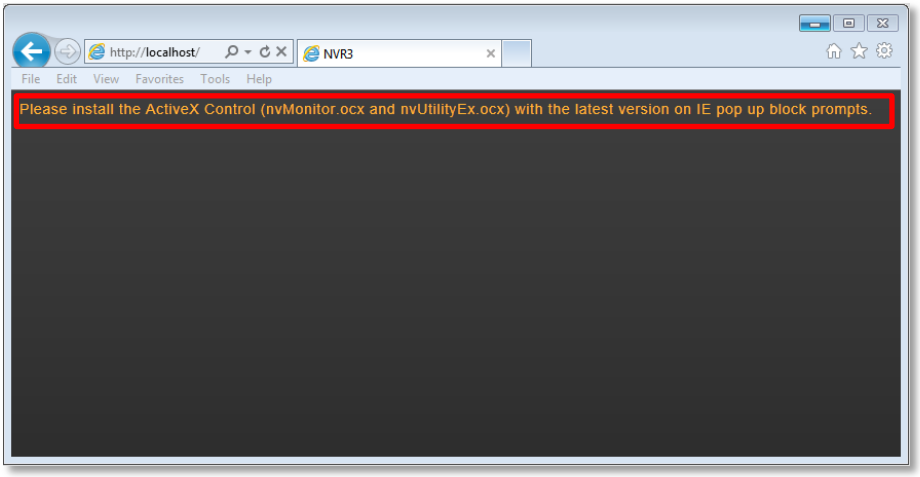
3. Press down "**ctrl**"+ "**alt**" + "**Delete**" keys to bring up **Windows Task Manager**. Select "**View**", then "**Select columns**", and enable the **"PID (Process Identifier)**" to appear on search results. Please also make sure "**Show process from all users**" is enabled.

4. On **Task Manager Process** tab, locate the PID number of the service using port 80. The service name is shown under "**Image Name**" column.



Condition 2: Why can't I install Active X controls after logging in?

ActiveX Control components are essential for the NVR server to present user interface. The message below will show if these controls were not installed. Please try refresh the browser first, making IE pop up the prompts again.


http://localhost/
NVR3
File Edit View Favorites Tools Help
Please install the ActiveX Control (nvMonitor.ocx and nvUtilityEx.ocx) with the latest version on IE pop up block prompts.

Cause 1: Your **Internet Explorer** browser version does not support NVR 3.0 system.

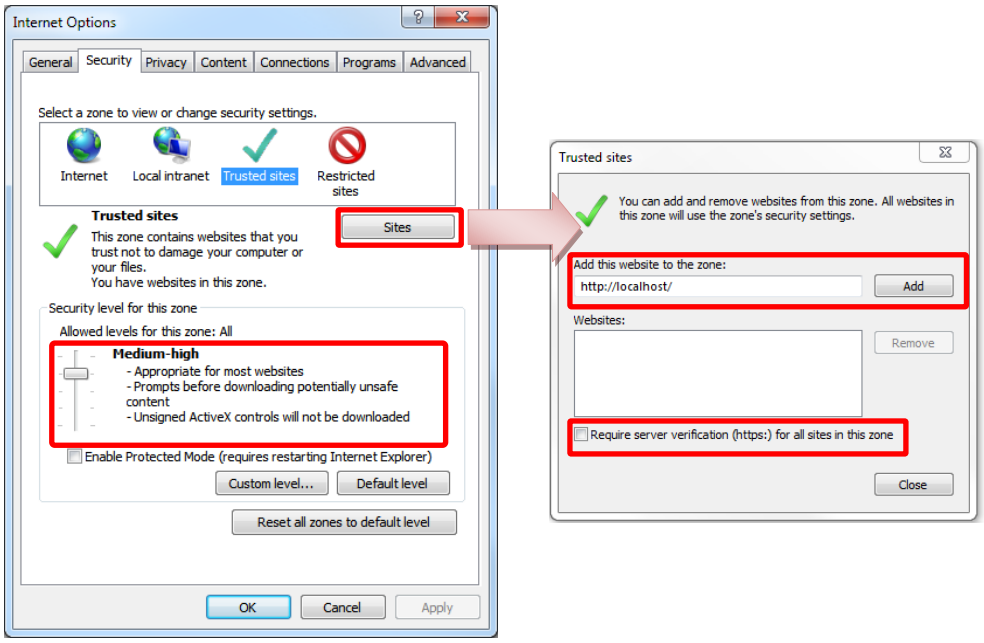
Solution: Make sure your browser is **32-bit** version.

Cause 2: Your browser restricts the installation of add-on components.

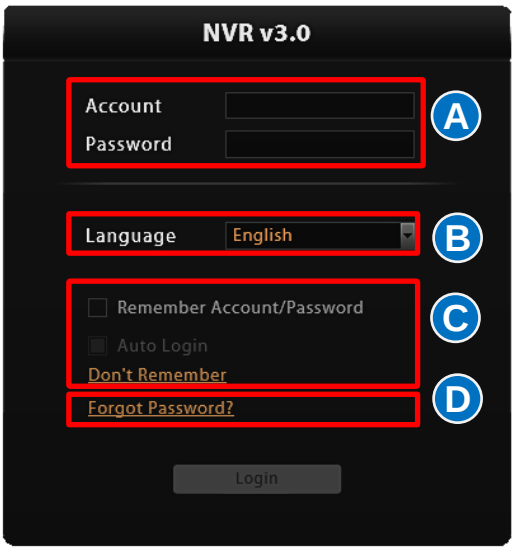
Solution: Internet Explorer security settings may restrict the installation of add-on components.

To ensure the NVR server is always accessible from your web client regardless of any change in browser's overall Internet security settings, you may add the NVR server site to Internet Explorer's trusted sites. Trusted sites are the sites which you consider safe and wish to visit with low security restrictions while maintaining higher security for the rest of the Internet.

1. On IE browser, click **Tools → Safety** and make sure **ActiveX Filtering** is unchecked.
2. On IE browser, go to **Tools →Internet Options→Security** tab, select "**Trusted sites**", set the security level to "**Medium High**", and then click "**Sites**".
3. Add http://localhost or the NVR server IP to the zone, and **clear** the box "**Require server verification (https:) for all sites in this zone**".
4. Back on **Security** tab, click "**Apply**" to apply the changes. This will allow ActiveX and scripting to be available for the chosen sites but not for the Internet as a whole.



Login



A. Enter Account & Password

Account (non case-sensitive)**:**

Admin (default)

Password (case-sensitive)**:**

123456 (default)

B. Change UI language

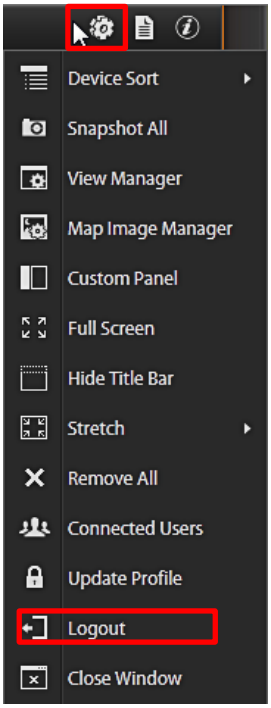
To change UI language, select the desired language from "**Language**" dropdown list.

C. Remember Account/Password

To have the server remember your Login **Account** and **Password** in the future, check "**Remember Account/Password**". Click "**Don't Remember**" will clear your input text and reset to default.

To directly enter the main page every time you log in, check "**Remember Account/Password**" then "**Auto Login**" to skip the Login page. **If your computer may be accessed by someone without proper authority, please DO NOT use either of these functions**.

To cancel auto-login, on title bar, click → "**Logout**" to return to login page, and this function will be disabled.



D. Retrieve the Forgotten Password

Please refer to E. Retrieve the Forgotten Password on page 43.

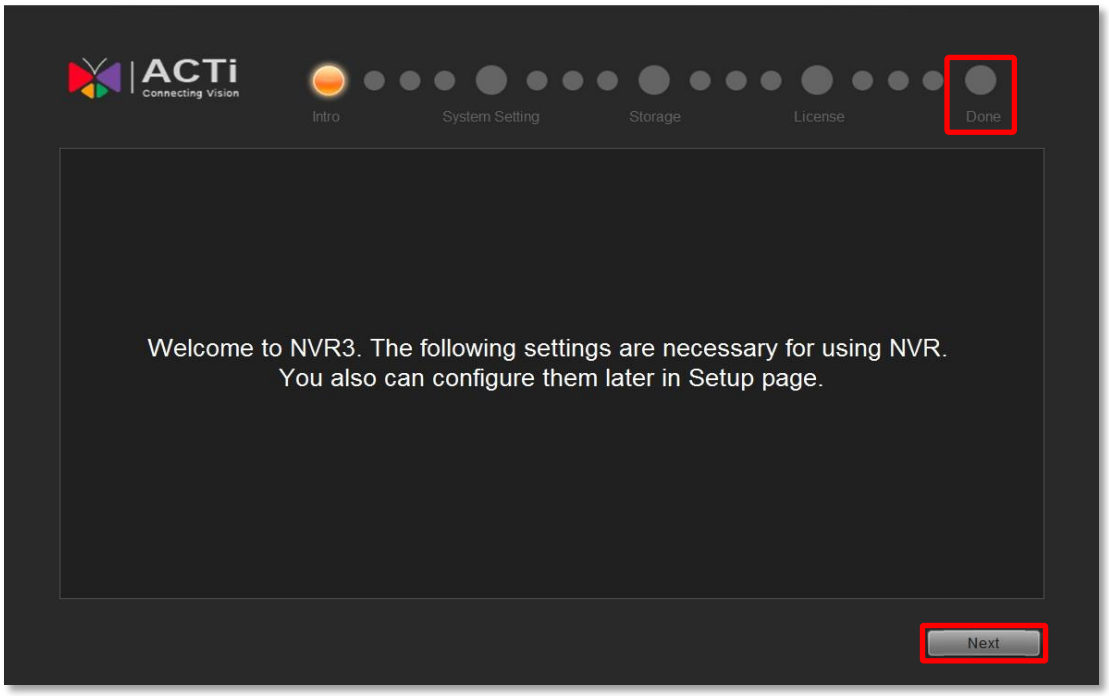
Set up the System

This chapter will guide you through everything you need to know in System Setup procedure from first time connection with ACTi NVR server with NVR 3.0 system to general system configuration.

Setup Wizard

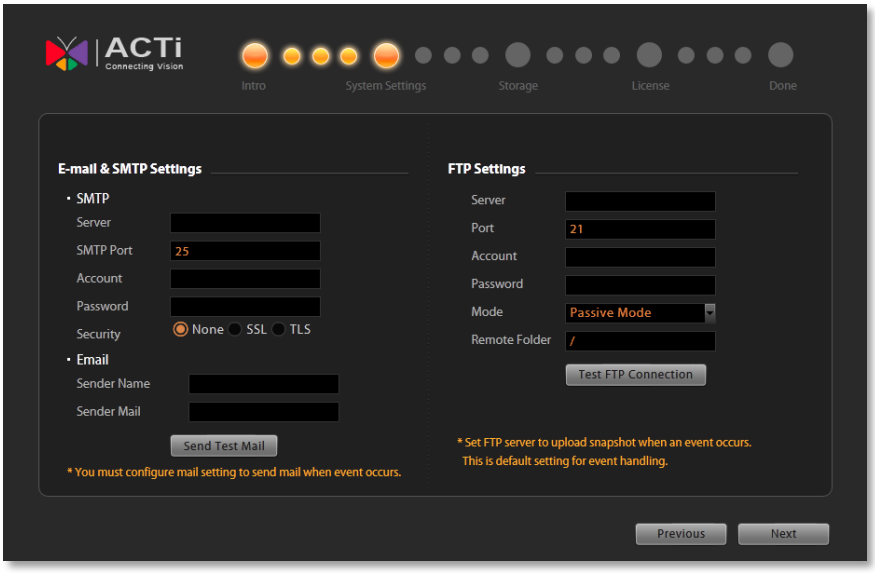
Once you connect to ACTi NVR 3.0 for the first time, **Setup Wizard** will guide you through the initial setup process. You may click "**Previous**" or "**Next**" button located on the lower right at any time. This will skip the current step so that you may come back to it later. All the settings in the **Setup Wizard** are available in the **Setup** page.

To skip this wizard, click the bubble "**Done**" on top right corner.



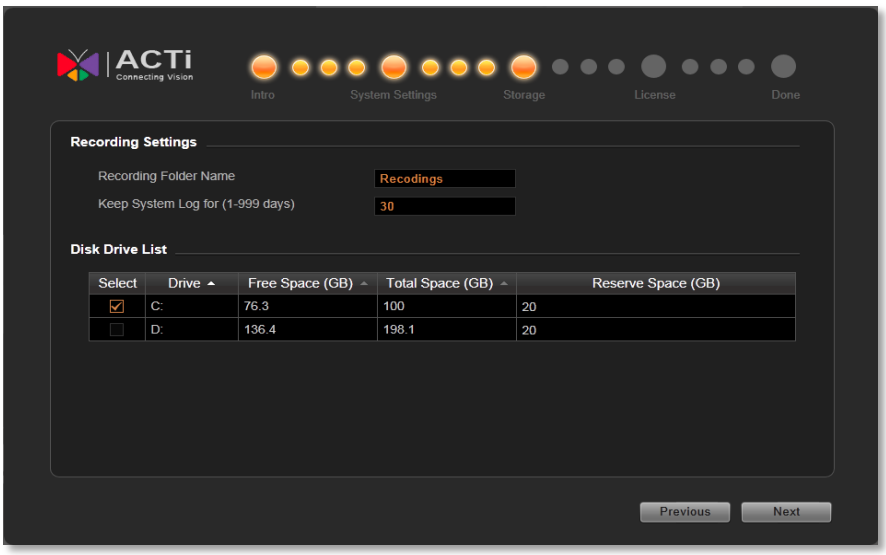
System Settings

You can adjust the Email & SMTP settings, FTP settings for event rules now or later. For more details about the settings, please refer to How to Setup SMTP Settings for Event Rules on page 97 and How to Setup FTP Settings for Event Rules on page 98.

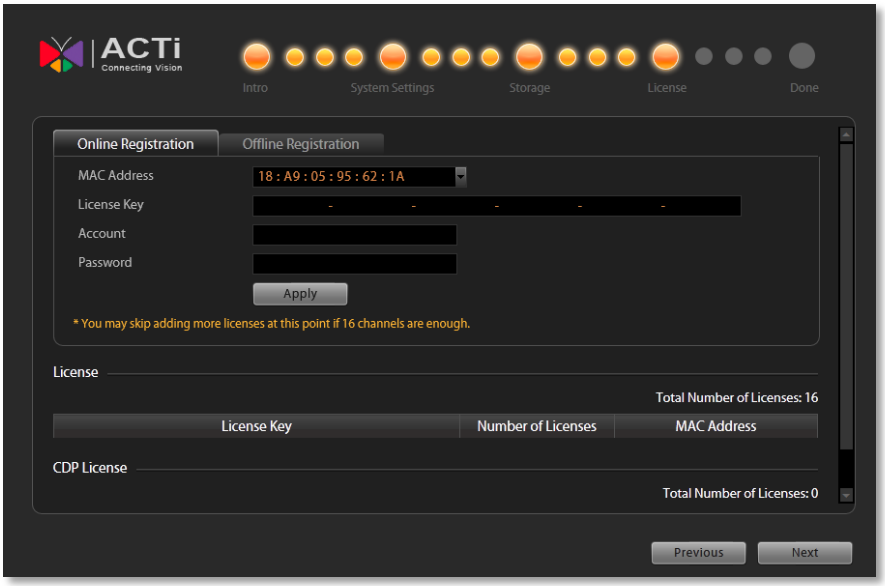


Storage

On the NVR server, you may want to choose which disk drives to store the recording files, and decide how much memory space is left for all computer applications to run. You must configure the **Drive** and **Reserve Space** for recording. **Reserve Space** is the space on the drive that will not be used to save recording files, the deletion of earliest recording files will be performed if available space has decreased to reach below **Reserve Space** configuration; you may choose one or multiple disk drives in **Disk Drive List** to save the recordings. If you skip this step, **Drive C** will be the default drive. For more details about the settings, please refer to Storage Management on page 103.



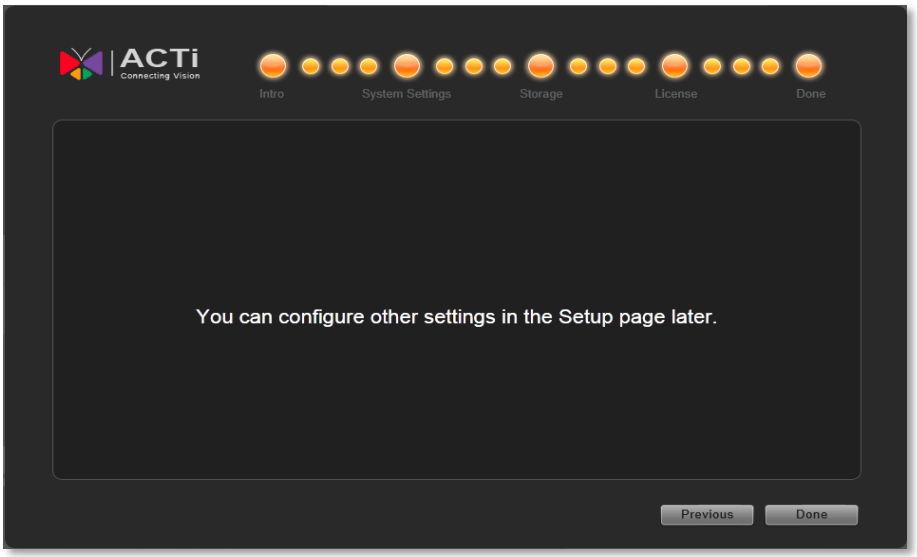
Licensing



This is the license management section. On lower right part of screen shows number of channels allowed under your current license. INR-410/420 has a license for **64** channels which is already activated. You can click "**Next**" to next setting if you do not want to add new license for now. For more details about the settings, please refer to License and Activation on page 36.

The End of Setup Wizard

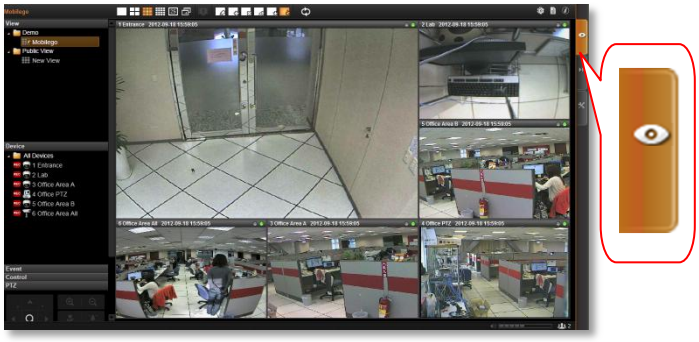
Click "**Done**" to complete **Setup Wizard**, the previous configuration steps you have gone through are available in **Setup** page.



NVR Main Screen

You will enter the live view screen after **Setup Wizard**. On the right are link buttons to three NVR major functions: (1) **Live view**, (2) **Playback** and (3) **Setup**. You can click the orange button to enter the function page.

Live View



In this module, you can see live view from cameras, perform PTZ operations with mouse or Joystick, view system log, receive alerts on the event panel, set up view layouts, perform manual recording or take a snapshot.

Playback

You may find and playback existing recordings in this module. Up to 64 channels can be played synchronously. Snapshots or video segments can be taken from playback files. Recorded files can also be exported to AVI format here.

Setup

This module includes user setup, device setup, event setup, schedule setup and system-wide settings.

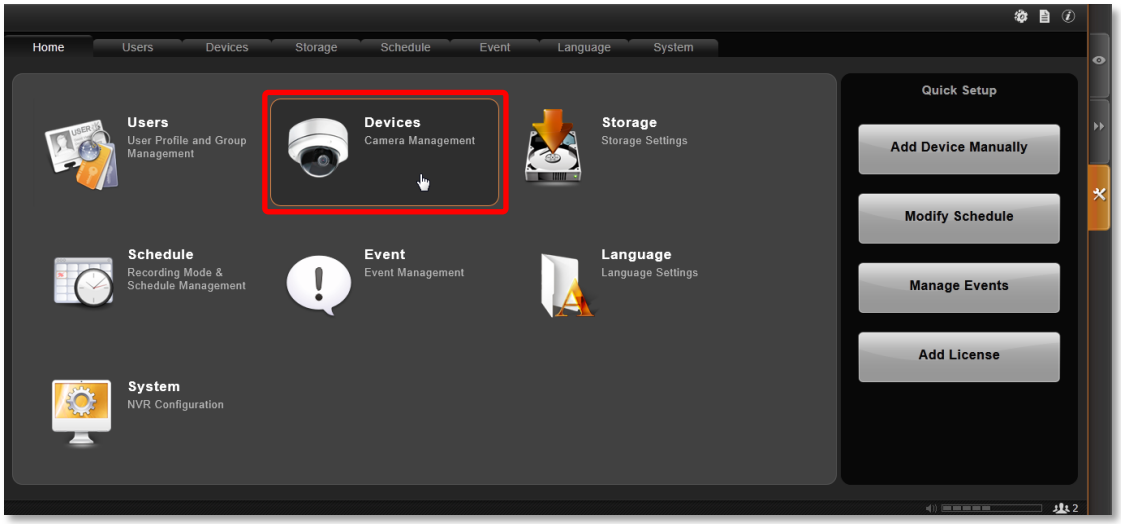
Add Devices

Cameras or video encoders are the fundamental building blocks of surveillance systems. To manage cameras from INR-410/420, you have to add camera devices into NVR 3.0 system first.

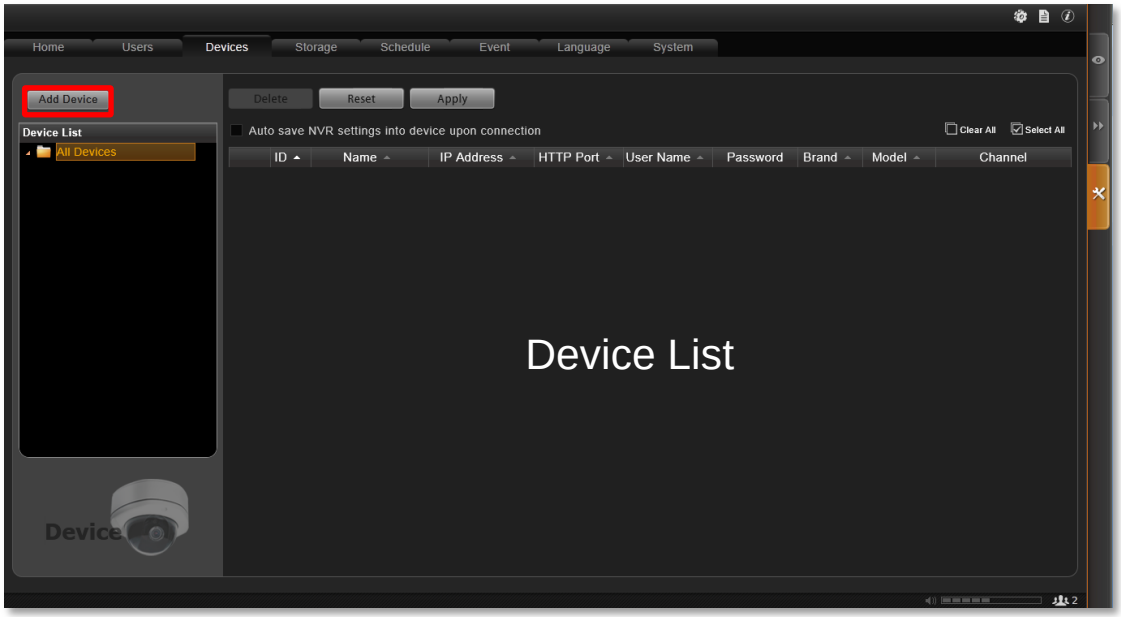
In this section, we will guide you through how to add or delete devices on the NVR 3.0 system.

To start adding new devices, please follow these steps:

1. On **Setup** page→**Home** screen, click "**Device**".



2. On **Devices** page, the **Device List** is currently empty, and you need to add some video sources to it. Now click "**Add Device**".



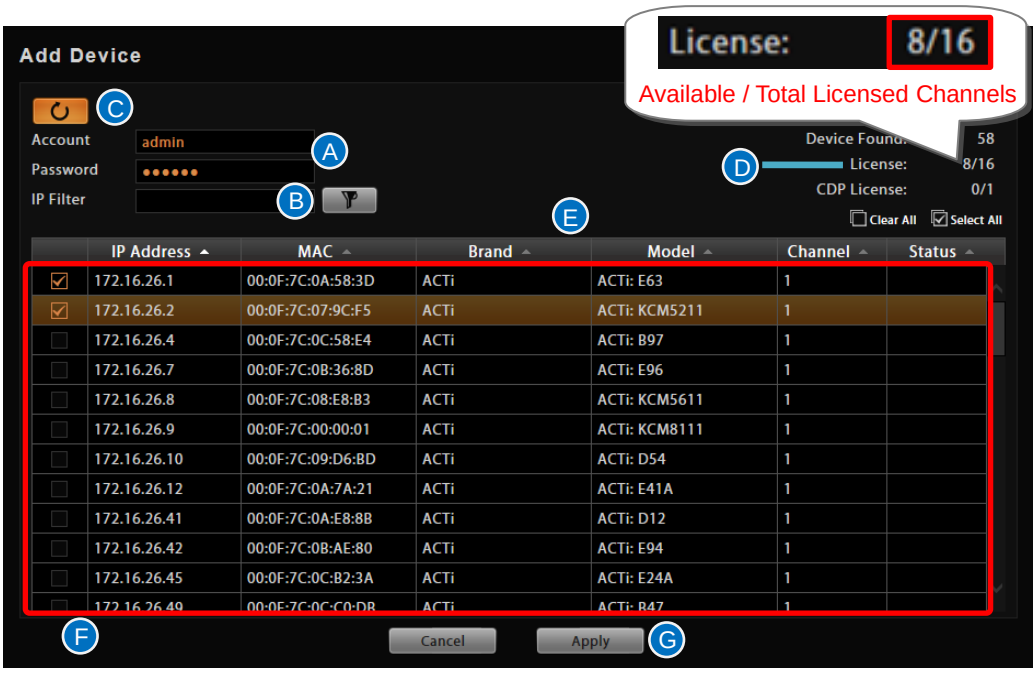
3. There are three ways to add devices into the system, **Search Devices**, **Search ONVIF Devices**, and **Add Device Manually.**

Add Device
Search Devices
Click this option to search all available devices inside the local network.
Search ONVIF Devices
Click this option to search available ONVIF devices.
Add Device Manually
Click this option to add device manually.
Cancel

- Use **Search Devices** to auto search ACTi cameras located in the same subnet as your NVR server.
- Use **Search ONVIF Devices** to find devices that support ONVIF in the same subnet as your NVR server.
- If your cameras / video encoders are located outside of a local subnet or over WAN, add them to your NVR server by using the **Add Device Manually** button. You will need to know the IP address of the device to add it manually.

Search Devices Within Local Area Network

1. Select "**Search Devices**". Once the search is completed, a list of the devices in your LAN will be shown. Click on the title header to sort by that column. Click on the header again to sort in reverse order**.** For faster search, you may type a specific IP address or a part of the IP address in **IP Filter** as a filter and click to narrow down the search result.

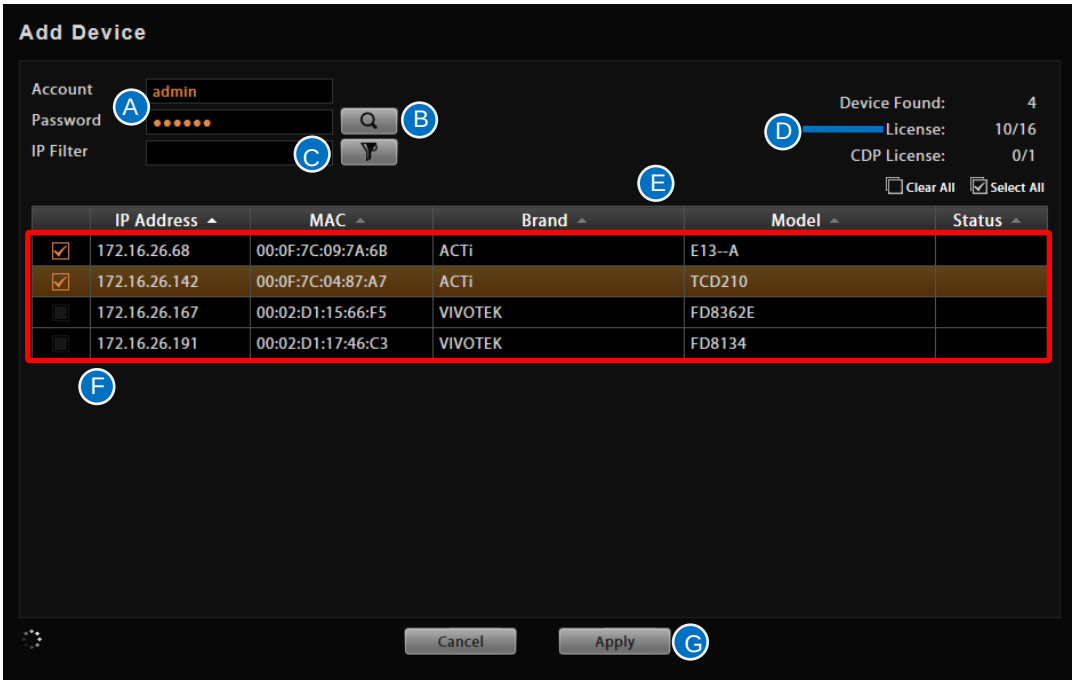


A. Account/Password text box
B. IP filter (for multiple networks)
C. **"Refresh"** button
D. Available / Total Licensed Channels
E. Column title
F. Search result
G. **"Apply"** button

2. Select the row of the camera you wish to add to the system and repeat this step until you have checked all the devices you need. Please note that the list of devices is shown regardless of the account name and password. You can choose to add all shown devices. For those with different account and password, you will be prompted to fill in the correct credentials to in order access the video feed. To perform the search using different credentials, fill in the new **Account** and **Password** and click the **"Refresh"** button .
3. Click "**Apply**" to add selected devices into NVR system.

Search Devices Within Local Area Network with ONVIF

1. After selecting "Search ONVIF Devices", fill in the account name and password for the device you want to add.
2. Click the "Search" button . Once the search is completed, a list of available devices will be shown. You may click on the title header to sort by that column. Click the header again to sort in the reverse order. For faster search, you may type a specific IP address or a part of the IP address in IP Filter as a filter, and click to narrow down the search result.



A. Account/Password text box
B. **"Search"** button
C. IP filter (for multiple networks)
D. Available / Total Licensed Channels
E. Column title
F. Search result
G. **"Apply"** button

3. Select the row of the camera you wish to add to the system and repeat this step until you have checked all the devices you need.
4. Click "**Apply**" to add selected devices into NVR system.

Important Notice

1. For certain non-ACTi devices, you may need to configure the ONVIF user credentials of the camera by accessing its Web Configuration page and managing the ONVIF Users List.
2. Functions supported for devices added through ONVIF are live streaming and adjustments to video image settings.

Add Devices on WAN or Other Local Area Networks

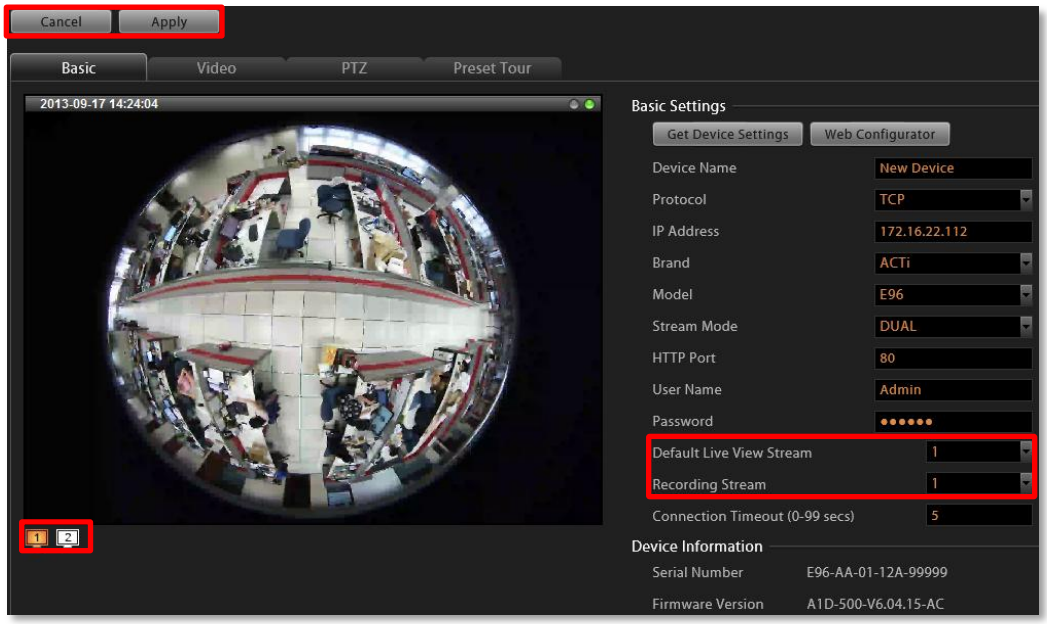
1. After selecting **"Add Device Manually"**, the camera settings page will appear as below. The most important settings are (1) **Media Type**, (2) **Protocol**, (3) **Camera IP**, (4) **HTTP Port**, and (5) **User Name** & **Password**. Please fill in these required fields for NVR to communicate with the device.

If the device you wish to add supports ONVIF, you can select ONVIF for **Media Type**, and the settings page will appear as below. The most important settings are (1) **Media Type**, (2) **Camera IP**, (3) **HTTP Port**, and (4) **User Name** & **Password**. Please fill in these required fields for NVR to communicate with the device.

Important Notice

If any of the required fields is incorrect, NVR will not be able to connect the device. When you have any device connection problem, please check these settings. However, at this point, you may skip filling in the **Device Name**, **Brand, Model**, and **Stream Mode** configuration.

2. Click "**Get Device Settings**" to have NVR contact the device and get the live view. Once connected to the device, NVR will get all the device properties such like **Brand**, **Model**, **Device Serial Number**, **Firmware Version**. If the device supports dual stream, **Stream Mode** selection field will be revealed, and you may select a different streaming mode and configure relative options. You may click "**Cancel**" button on the top to abort setting this device or "**Apply**" to save it.



3. To directly access the device configurator webpage, simply click "**Web Configurator**" on the top right to open it. Certain detailed settings are only available through the web configurator.

Basic Settings Attributes

Field Name	Description
Media Type	Select the media type of the camera, choosing either **"Standard"** or **"ONVIF".** To connect with a camera using ONVIF, please make sure the camera device supports ONVIF.
Device Name	Enter the name of the camera, which will be shown in the **Device** list on the left in Live View. This name should be descriptive so that you know where the camera is located.
Protocol	Select a streaming protocol to connect the camera with.
IP address	Enter the camera's IP address or host name.

Brand	Select the manufacturer of device.
Model	Select the device model of the IP cameras / video servers. In most cases, this is automatically filled in after you perform **Get Device Setting** for ACTi cameras.
Stream Mode[*1]	Select one of the streaming modes this device supports.
Channel No. [*2]	The channel ID you set for a stream of a multi-streaming device.
HTTP Port	Enter the HTTP port for IP cameras/ video servers. Most cameras use the default port number - 80.
User Name	Enter the user name to access the camera.
Password	Enter the password to access the camera.
Default Live View Stream[*3]	Choose the streaming id for Live View.
Recording Stream[*3]	Choose the streaming id for Recording.
Connection Timeout(0~99 secs)	Enter length of time allowed for a device to respond to NVR. If the response is to late as to exceed this time, NVR will consider this device "disconnected". We recommend you to set different values for different types of connection. The default setting is 5 seconds. For devices located over the WAN, you may wish to increase this value to allow for occasional Internet lags.

[*1] Available when NVR is connected to a multi-streaming device.

[*2] Available when NVR is connected to a device that is concurrently in multi-streaming mode (Dual Stream mode excluded).

[*3] Available when NVR is connected to a multi-streaming device in Dual Stream mode.

Device Status

To validate if you have successfully added a device to NVR system, simply check the **Device List** on the left of **Setup →Devices** tab to see if the device name appears in the tree. Point your mouse cursor over the device icon will bring up an information box containing the device's **IP Address**, **HTTP Port**, **Protocol** and device type.

Status Icon Description

Icon	Status Description
	NVR server cannot retrieve video streaming. This may be that a video server is not connected with cameras, or that the streaming is blocked by the firewall between the device and NVR server. Please (1) ensure the device side is well connected and can output video normally,(2) check the firewall and port forwarding settings.
	This device's settings have been modified but not saved yet. If you leave these modifications unsaved, they will not take effect by next time the server starts. Please always remember to save upon every change.
	NVR cannot build up connection with this device. Please check the device connection settings (including IP Address, Port number, Account Name and Password); or increase the "**Connection Timeout**" to allow more time for the device to respond.
	This device is currently connected, video is being transmitted and no recording is proceeding.
	This device is currently connected, and video is being recorded either manually or according to the schedule.

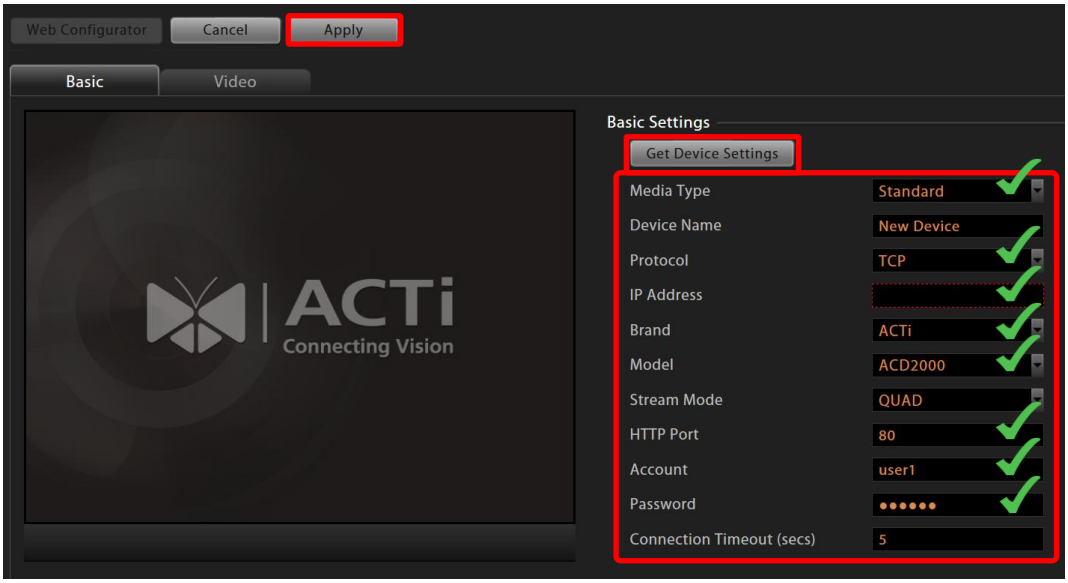
Add Non-ACTi Cameras

In this section, we will guide you through how to add devices of other brands to NVR 3.0 system.

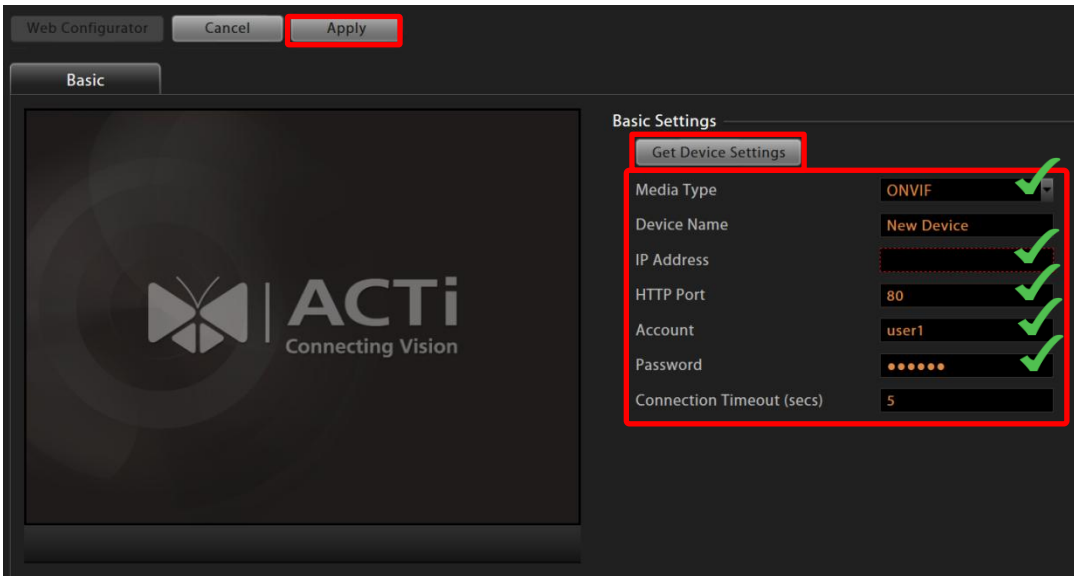
After the required CDP license is activated, please:

1. Use the utility provided by camera the manufacturer to confirm the camera properties: (1) **Protocol**, (2) **IP Address**, (3) **HTTP Port**, and (4) **User Name** & **Password**.
2. Log in to the NVR server, go to **Setup** page→ "**Device**" tab, click "**Add Device**", and select "**Add Device Manually**".

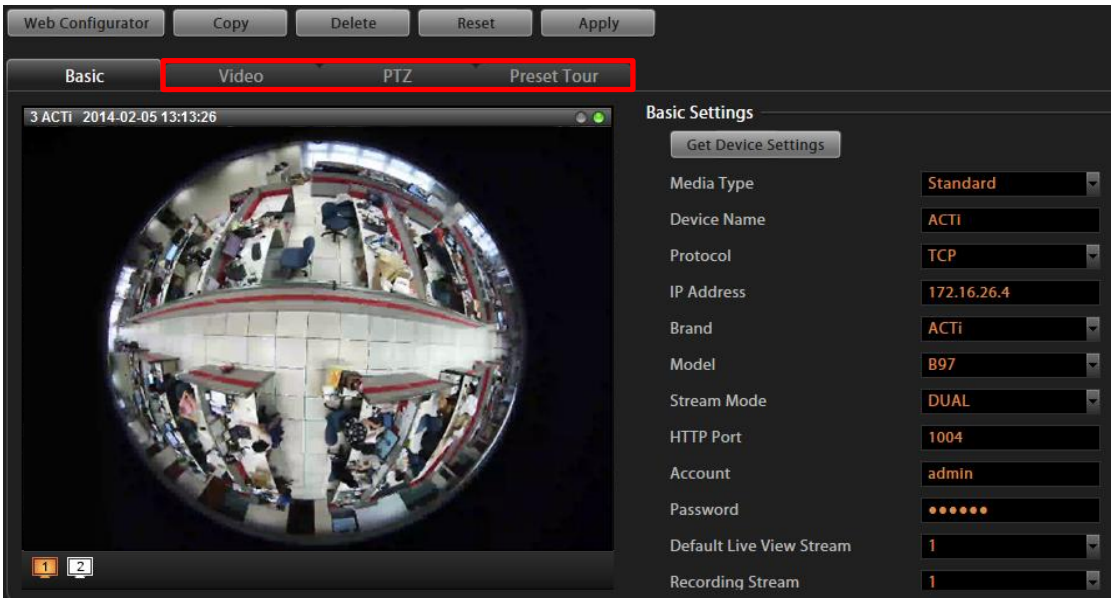
3. After selecting **"Add Device Manually"**, the camera settings page will appear as below. Please fill in the **eight** fields marked below that are required to communicate with the device – **Media Type, Protocol, IP Address, Brand, Model, HTTP Port, User Name** and **Password**, and then click **"Apply".**



If the device you wish to add supports ONVIF, you can select **"ONVIF"** for **Media Type**, and the settings page will appear as below. Please fill in the **five** fields marked below that are required to communicate with the device – **Media Type, IP Address, HTTP Port, User Name** and **Password**, and then click **"Apply".**



4. By applying the settings, the NVR server will get the video stream, and the camera will have been successfully added to the NVR system. You may click **Video, PTZ,** or **Preset Tour** (available for camera with pan/tilt/zoom capabilities) tabs to configure other properties.



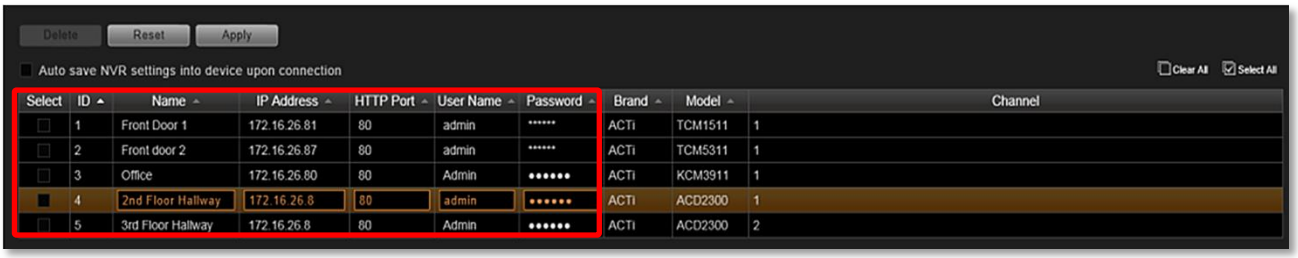
5. To directly access the device configurator webpage, simply click "**Web Configurator**" on top left to open it. Certain advanced settings are only available through the web configurator and not through NVR.

Manage Multiple Devices

After adding several devices to the system, you may get an overview of all devices on **Setup** page→**Device** tab; this is where you may use certain fast and convenient approaches to manage a number of devices. In this section, we will guide you through how to quickly add or delete multiple devices.

Modify Basic Connection Settings

Go to **Setup** page → **Devices** tab, and click **All Devices** in **Device List** to get the devices overview in the right column. Each basic connection setting field including Name, IP Address, HTTP Port, User Name and Password, is editable. Simply click in the field to modify it directly.



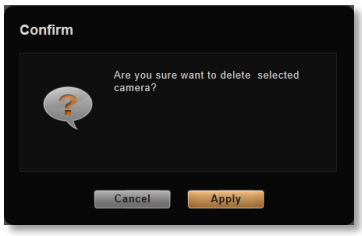
Every time you modify a property without saving it, an icon will appear next to the device in **Device List**. You may click "**Reset**" to retrieve the settings you saved last time once you want to abort the current modificaiton. After changing any field, please remember to click "**Apply**" before you leave this page.

Tip

The NVR server will sync with devices upon connecting to them. To make sure the settings on the NVR side are prior to and always overwrite those on device sides, please check "**Auto save NVR settings into devices upon connection**".

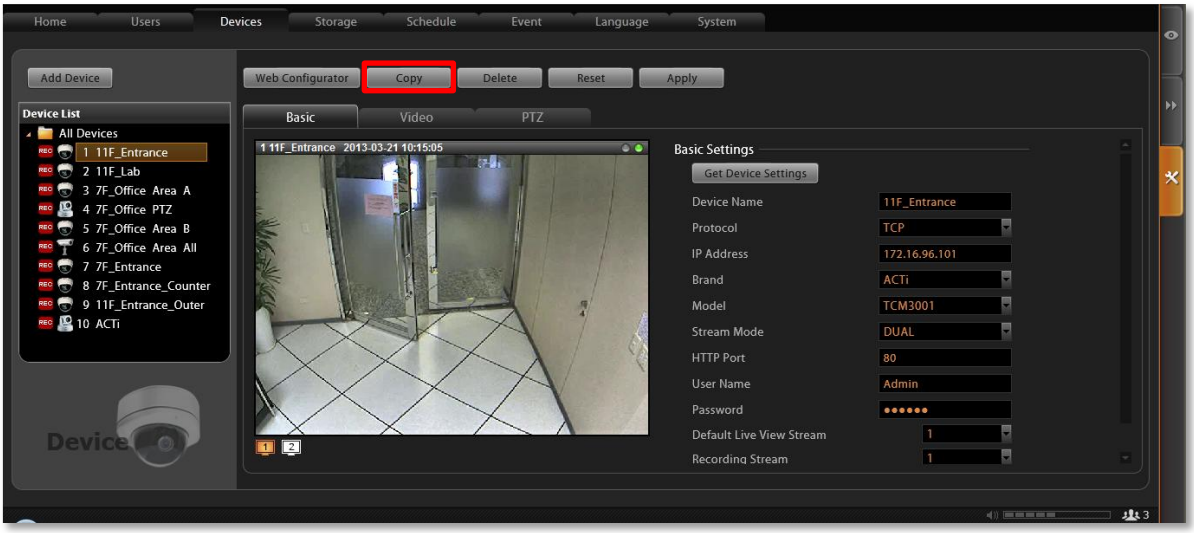
Delete Devices

You may delete a single, multiple or all devices on **All Devices List**. The logs and video files of the devices will be kept until deleted by server storage deletion rule. Select the device(s) you wish to delete, click "**Delete**" button and confirm the deletion. If you want to delete all the existing devices, simply click Select All on upper right to select them all at once. To validate if you have successfully deleted a device on the NVR system, simply check the **Device List** on the left of **Setup** page → **Devices** tab to see if the device name is removed from the tree.



Copy Settings Across Devices

When setting a large number of devices, many settings will resemble other ones, and it is sometimes tiresome to repeat every setting again and again. You can use the **Copy** function to save the hassle of needless repetition.



1. On **All Device List**, select the source device whose settings are to be copied from. You can select only one device to be the source.
2. Click "**Copy**" to bring up the copy setting window.
3. On the window, below the source device name are the settings you may choose to copy, including **Basic settings**, **PTZ Settings** and **Video Settings**.
4. Click "**Apply**", the settings will be written to target devices.
5. To add a new device with the same settings, choose "**Add New Device**" in **Target Device** area, and then click "**Apply**" to go to a new device page. Each field on this page has already been filled with the source device's properties. You may continue to modify the **Device Name**, **IP Address**, get the live view by clicking "**Get Device Settings**", and then click "**Apply**" to add this device to **Device List**.
6. There are a few differences of the copied items between two target device types:

Settings Copied to Target Devices

Target Type / Settings	New Device	Existing Device
Basic	All	All except **Device Name**, **IP Address**, **HTTP Port**, **RTSP Port**, **User Name** and **Password**
Video	All except **Motion Settings**, **Video Adjustment**	
PTZ	All except **PTZ Preset Points** and **Commands**	

Note

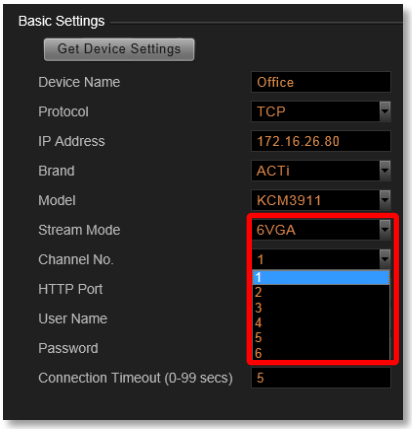
1. You can only choose either "**Add New Device**" or existing devices as target.
2. To add new devices by copying from an existing one, the user's group should be permitted with this right. To check the access rights, please go to **Setup** page→**Users** page→**User Groups**, select the user group, and enable the "**Device Setup**" -"**Add New Device**" under **NVR Permissions.**

Add Video Streams from a Multi-channel Device

There are devices that output more than one video streams to the NVR server. For example, a video encoder converts a number of analog video signals into the same amount of IP video streams; certain high megapixel cameras such as ACTi KCM-5111, supports outputting multiple VGA streams cropped from a single high-resolution video source. These multiple streams coming from a single device are managed as different cameras by the NVR server.

To add these streams as multiple channels for you to view and record, please:

1. Select the desired stream mode in "**Stream Mode**" field on **Setup** page →**Devices** tab→**Basic** tab.
2. The "**Channel No.**" column will display for you to input the stream ID (the same with your setting in device's web configurator).
3. After configuration, click "**Apply**".
4. Go to **All Devices** page, duplicate this device to a new channel, and repeat this step until all the channels you need are added.
5. Individually modify the **Channel No** value of the channels.



Tip

Saving CPU loading with Your Dual Streaming devices

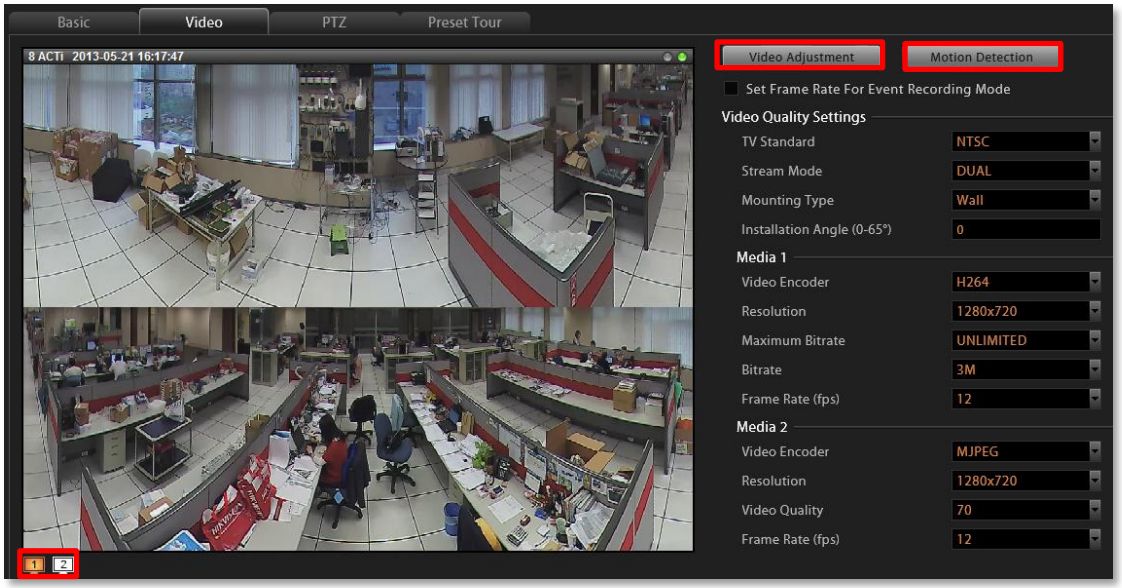
The device supporting dual-streaming function can output two video streams of different value. You may make the live view stream smaller in size with lower frame rate to save decoding CPU power and bandwidth. Meanwhile the recording stream can be larger and have more FPS so that you have clear images when you need to retrieve the evidence. For settings in both streams of devices with dual stream functionality, please refer to section Configure Video Format on page 67.

Configure Device Settings

After adding a device to the NVR system, you may continue to configure its video, motion detection, PTZ or preset tour settings on **Setup** page→**Devices** tab. In this section, we will guide you through how to configure these settings and their corresponding functions.

Configure Video Format

Go to **Setup** page →**Device** tab, select a device from **Device List**, and then go to **Video** tab to configure the video format of the stream output from the device. If the device is currently in Dual Stream mode, you may switch the stream in live view window by click on the switch below and configure individual settings for Media 1 and Media 2.



Video Settings Attributes

Field Name	Description
TV Standard	Default is **NTSC**.
Stream Mode[*1]	Select one of the streaming modes this device supports.
Mounting Type[*2]	Select the mounting position.
Installation Angle[*3]	Input the angle for a device mounted on the wall.
Video encoder	Select the desired codec.
Resolution	Select the desired resolution.
Video Quality[*4]	Select the desired video quality.
Frame Rate(fps)	Select the desired frame rate.
Maximum Bitrate	This puts a hard cap on the maximum bit rate allowed in any given second of streaming. Assigning a limited bit rate may cause a few dropped frames when the stream data overflows the allowed bit rate.
Bitrate[*5]	This is the target bitrate that the camera will attempt to provide when

	you have selected "**Unlimited**" for **Maximum Bitrate**. The actual value will fluctuate slightly based on scene changes.

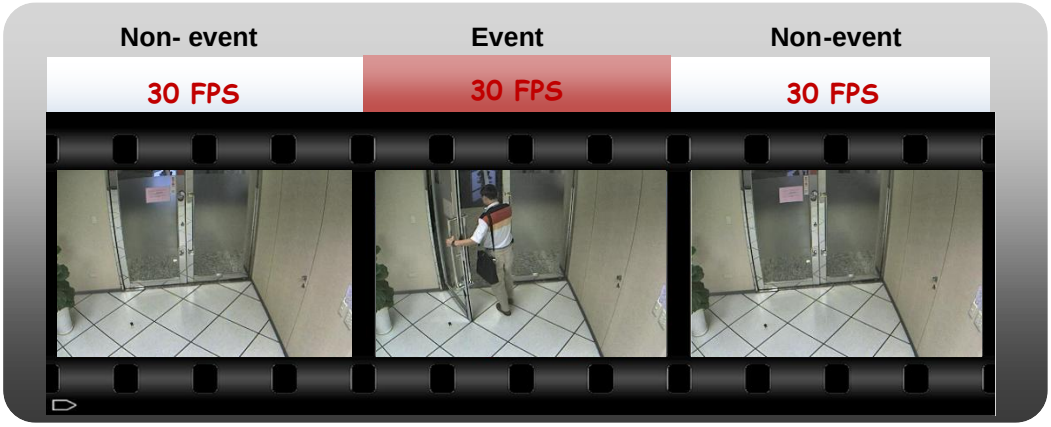
*[1] Available for multi-streaming devices.
*[2] Available for hemispheric devices.
*[3] Available for hemispheric devices with "**Wall**" **Mount Type**.
*[4] Available when "Video Encoder" is "MJPEG".
*[3] Available when "Maximum Bitrate" is "Unlimited".

Save Storage by Setting Event Recording Frame Rate

Video surveillance system is aimed to preserve as much evidence as possible, and you may want to have a view to be recorded 24/7 to capture every important moment; however, the general recording methods provided by most network recording systems- event and schedule recording, will either consume too much storage or have risk in missing important scenes. The "**Set Frame Rate for Event Recording Mode**" function record everything at economical storage usage by automatically adjusting video frame rate during event recording period.

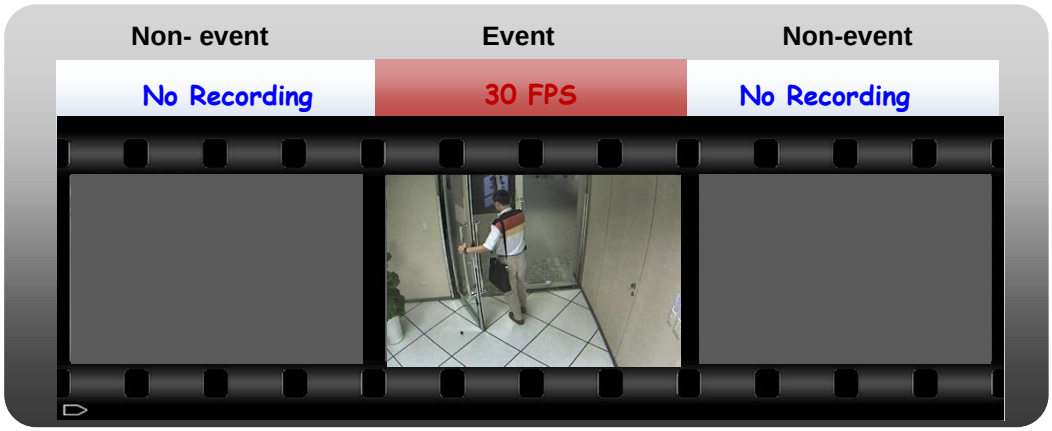
Schedule Recording

Continuous recording promises no loss of video evidence; **however, large data storage is required** because this video is always recorded at the high frame rate you set for device.



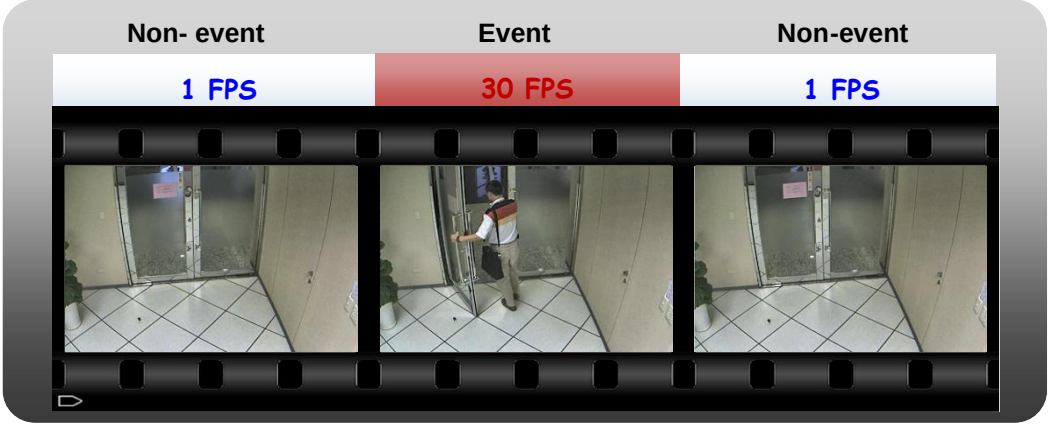
Event Recording

This mode is storage-efficient because recording would stop during the non-event moments; while **certain vital video evidences may be missed if the triggering device fails to take effect.**



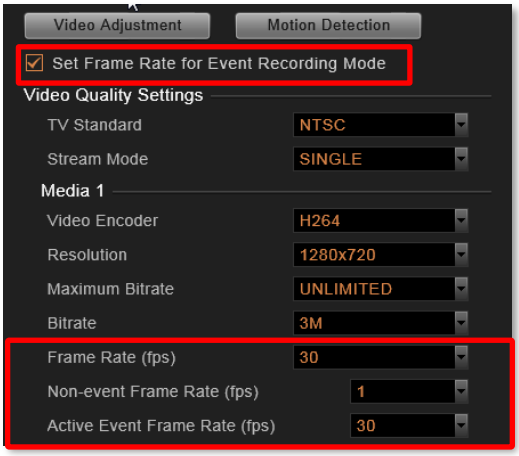
Event Recording with Frame Rate Adjustment

This mode keeps recording all the way without losing any single moment; lower frame rate can be set for non-event recording, which consumes only a little storage.



How to Make Use of Event Recording with Frame Rate Adjustment

To make use of **Event recording with Frame Rate Adjustment function**, you may configure the **Frame Rate** settings on **Setup** page →**Device** tab→**Video** tab. The **Frame Rate (fps)** you set will always be applied to live view and schedule recording. Once **Set Frame Rate for Event Recording Mode** is checked, you may configure advanced settings for event recording. If the device is in **Dual** stream mode, you will only need to configure these settings of the **Recording Stream**.



Scenario A:

You wish all the videos are recorded at a very high frame rate. With sufficient storage, you may not need this function. Set the video **Frame Rate** that will apply to all the recordings. In this way, the NVR server will not record non-event during event recording period.

Frame Rate Setting Set Frame Rate for Event Recording Mode	Event Recording
Frame Rate (fps) 30	Non-Event: 0 FPS
	Event: 30 FPS

Scenario B:

You would like the system to record 24/7, and the non-event recording to be kept at a very low frame rate. Please set the event and schedule recordings at different frame rate, you will need to enable "**Set Frame Rate for Event Recording Mode**", and set the "**Non-event Frame Rate**" and "**Active Event Frame Rate**".

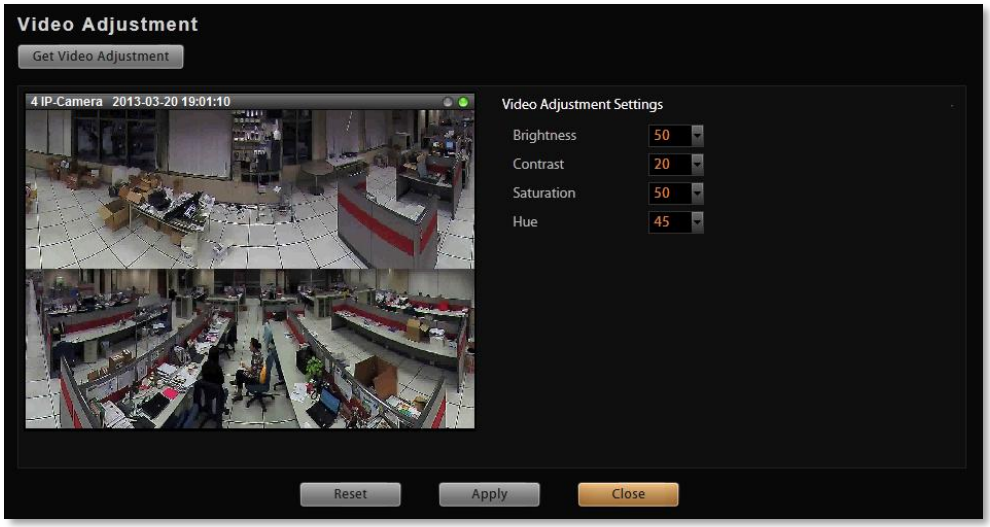
Frame Rate Setting	Event Recording
☑ Set Frame Rate for Event Recording Mode	
Frame Rate (fps): 30	Non-event:1 FPS
Non-event Frame Rate (fps): 1	
Active Event Frame Rate (fps): 30	Event: 30 FPS

Fine-tune the Image

When monitoring your cameras, it is essential to make the images as similar to the real scene as possible. The default settings of the camera are usually sufficient for most environments, but you may also make adjustments in case it is required to do so. For devices that support the configuration of properties related to image, day/night mode, or exposure/white balance settings, you may directly modify them and save your changes to the device using the NVR 3.0 system. The options available may vary depending on the device.

To start, click "**Video Adjustment**" on **Device Video** tab. Each field is only available when the device supports this property for modification. If the device is in Dual Mode, the video you get in this window will always be **Stream 1**.

1. At first, synchronize with the device to get the current settings by clicking "**Get Video Adjustment**".
2. After retrieving the settings from the device, the fields available for modification (depends on models) will be enabled. Set up the desired value for the field.
3. Click "**Apply**".



Video Adjustment Attributes

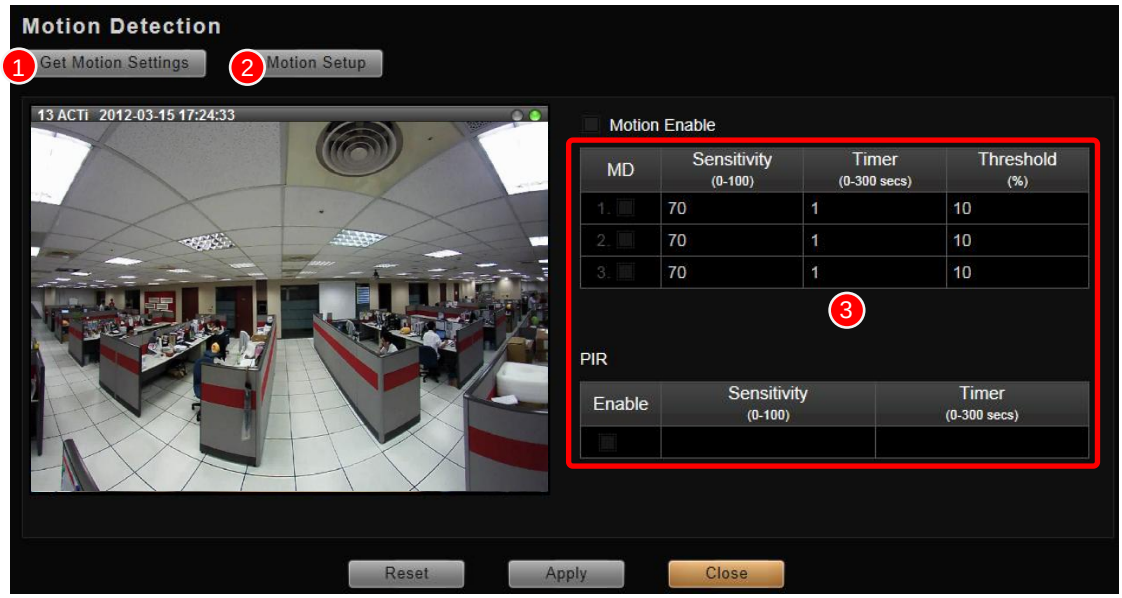
Field Category	Field Name	Description
Image	Video Flipping/ Video Mirroring	Check this box to flip the video vertically and horizontally to achieve a 180-degree rotation effect.
	Brightness	Select the Brightness value (0-100). The higher the value, the brighter the image.
	Contrast	Select the Contrast value (0-100). The higher the value, the more obvious the separation between light and dark.
	Saturation	Select the Saturation value (0-100). The higher the value, the more intense the color will appear; the lower the value, the more grayed-out the color will appear.
	Hue	Select the Hue value (0-100). "Hue" is the term used to refer to the pure spectrum colors. Adjust this value to find the color closest to the real scene.
	Digital Noise Reduction	Turn the Digital Noise Reduction **ON** or **OFF**. When turned on, the noise in the video (especially in low light) is reduced and the image will look smoother and clearer.
	Wide Dynamic Range	Select the WDR level from the following options: Disabled, low, medium, high, highest. Note: WDR is disabled and will not appear if Exposure Mode is set to "Manual".
Day/Night	Day/ Night Mode	Select one of three modes: **Auto**: The camera will automatically switch between day mode (color) and night mode (black/white) under exposure level defined by "Threshold". **Day**: The camera will always stay in the day (color) mode, regardless of exposure level. **Night**: The camera will always stay in night (black/white) mode regardless of exposure level.
	Threshold	The scale from 0-100 allows you to define the exposure level at which the day and night mode switch will happen. A higher value would require a darker environment to trigger a day to night switch and vice versa.
Exposure/ White Balance	Exposure Mode	Select between "**Auto**" or "**Manual**" exposure mode. In Auto mode, the intelligent system of the camera will find the best possible exposure settings. In Manual mode, you can manually adjust the White Balance, Exposure Gain, Shutter Speed, and Line frequency.
	White Balance	Select between "**Auto**" or "**Manual**" White Balance

		mode. White balance refers to the device's ability to accurately define "true white" color. In Auto mode, the camera will attempt to recognize the "true white" color and adjust the image accordingly. In Manual mode, you can configure the White Balance by adjusting the R Gain and B Gain value manually.
	R Gain	The scale from 1-255 allows you to define the R Gain level of the video frame. A higher value would adjust the image to have more red color value.
	B Gain	The scale from 1-255 allows you to define the B Gain level of the video frame. A higher value would adjust the image to have more blue color value.
	AE Reference Target	The scale from 1-255 allows you to define the Auto exposure reference target. A higher value will brighten the overall scene, although it may increase the amount of noise at night.
	Exposure Gain	The scale from 1-255 allows you to define the Exposure Gain level of the video frame. A higher value would make the video frame brighter.
	Shutter Speed	Shutter speed allows you to choose the speed of auto shutter.
	IRIS Control	IRIS control allows you to configure the size for the opening of the iris
	Line Frequency	Select between 50Hz or 60Hz to match with the frequency of artificial light source of a given country.

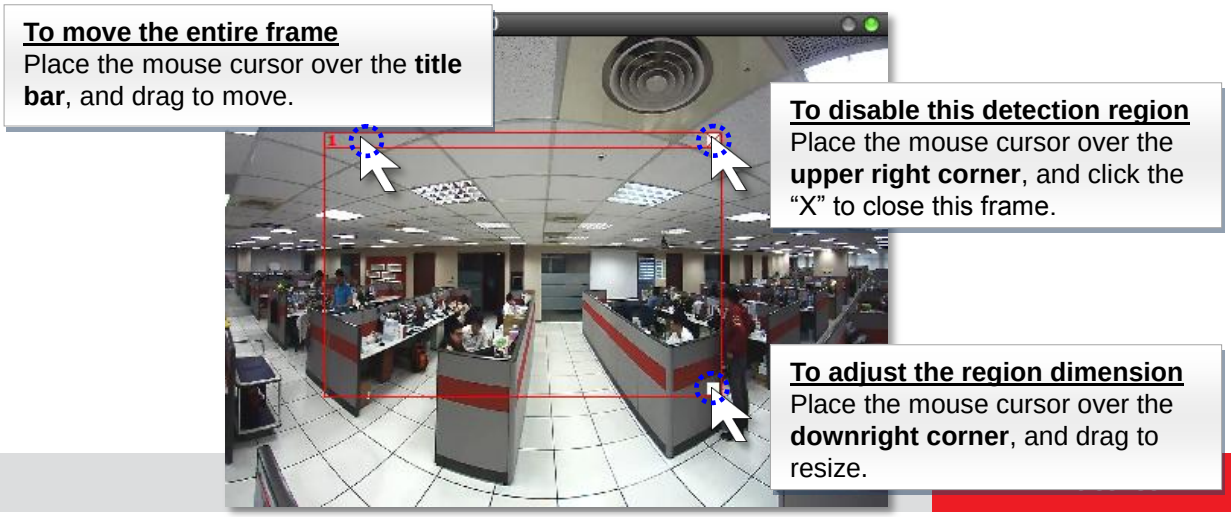
Configure Motion Settings

To make use of the motion and PIR detection functions supported by your devices, you need to configure the detection regions and settings. Once a motion is detected, the NVR server can trigger events and recording, bring up instant pop-up windows and show the detected area on live view.

Before configuring motion detection settings, first make sure you can connect properly to the IP camera / video server and get device settings. On **Device** tab→**Video** tab, and click "**Motion Detection**" to start.



1. Click "**Get Motion Settings**" to retrieve the live view. For Dual Mode, the video you get in this window will always be **Stream 1**
2. Click "**Motion Setup**" to enable the property fields.
3. There are three motion regions for you to set. To enable one region, check the **MD** box, and a red frame will appear in the view. You may start setting the detection area by adjusting this red frame on the view. Simply use your mouse to move and resize the frame.


To move the entire frame
Place the mouse cursor over the title bar, and drag to move.
To disable this detection region
Place the mouse cursor over the upper right corner, and click the "X" to close this frame.
To adjust the region dimension
Place the mouse cursor over the downright corner, and drag to resize.

4. When the setting is finished, click "**Apply**" to save, and then "**Close**" to exit this page. To check or modify the regions you set, please go through clicking "**Get Motion Settings**", **Motion Setup**" and then "**Motion Enable**" buttons, the saved regions are already selected on the list, select one to proceed.

Adjustment Attributes

Field Name	Description
Sensitivity(1-100)	Determines how sensitive the camera reacts to the movement. The higher the sensitivity level is, the smaller the motion will trigger the alarm, but may give false alarms. Default is 70.
Timer(0-300 secs)	The interval before the next motion detection can be triggered again. Default is 1 second.
Threshold (%)	The threshold level of this motion detection region. The lower the threshold level is, the smaller the portion of the region would be considered as motions, which is more easily to be triggered, but may give more false alarms.

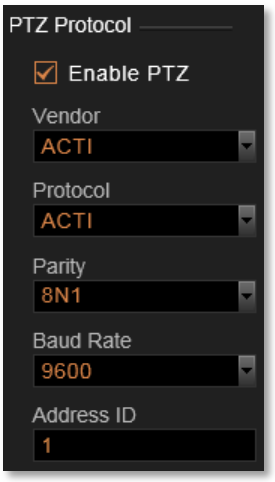
Note

1. If you have changed the motion detection settings via the web configurator, please remember to come back to the NVR server and press "**Get Device Settings**", and then "**Apply**" to save to the NVR server. This is to ensure that the settings in the NVR server are always in sync with the device.
2. If a motion region is set, once a movement is detected in this region, in live view (1) the red region frame will blink, and (2) a new alert entry will be generated in the event list.

Configure PTZ Device

PTZ devices can do panning, tilting and zooming automatically or through manipulation. The PTZ-related applications are broadly supported by NVR 3.0 system. For example, you may control the movements of a PTZ camera with user interface panel controls or a joystick, and the device can be programmed to execute a continuous tour or triggered by events to go to a preset position. Once an ACTi PTZ device is added to the NVR system, the NVR system will use the default settings of the device model and enable PTZ functions, so that you may immediately start PTZ operations.

If you have previously changed the communication parameters of PTZ devices, please make sure these parameters on the NVR side and device side match.



Below is a list of functions supported ACTi solutions and the required settings. When you configure PTZ Protocol properties for ACTi Pan/Tilt/Zoom devices, please make sure the required settings are correct.

ACTi Pan/Tilt/Zoom devices	Vendor	Protocol	Baud rate	Parity	Address ID
IP Zoom Camera/ IP PTZ Camera	V	V			V
IP Speed Dome / IP Camera mounted on Scanner/ Analog PTZ camera attached to Video Server	V	V	V	V	V

To start matching up the parameters, please follow the below procedures:

1. If the device is a speed dome camera or an analog camera attached to video server, configure the parameters on physical device according to the product's installation instructions.
2. On the device's (camera or video server) web configurator, configure the parameters to match the setting on physical device, and test the PTZ operations to make sure the device is properly set to be connected
3. In the NVR server, go to **Setup** page →**Devices** tab, select the device from **Device List**, and click **PTZ** tab. In **PTZ Protocol** section, fill in the communication parameters.

Adjustment Attributes

<table>
<tr><th>Field Name</th><th>Description</th></tr>
<tr><td>Vendor</td><td>The provider of Protocol. The selectable vendors would vary depending on different device models. Available vendor types are:
ACTI, DYNACOLOR, PELCO and SONY.</td></tr>
<tr><td>Protocol</td><td>A set of rules defining the communication format between the device and controller. Different protocols are provided for selection according to the Vendor you choose.
Available protocols following their vendors are:
ACTI: [ACTI] / DYNACOLOR: [DYNACOLOR] / PELCO: [PELCOD] [PELCOP]
SONY: [VISCA]</td></tr>
<tr><td>Parity</td><td>Parity is the data validation mechanism for analog devices that use serial port interface to send or receive data. When choosing parity mode other than "none", the data packets will be validated for possible data losses so that failed command could be re-sent if necessary. Please refer to the parity setting of the analog device and choose exactly the same parity setting also in the NVR server. When setting up ACTi Zoom, PTZ or Speed Dome cameras using "ACTi" protocol, you may ignore the parity setting.
Available parity modes are:
<table>
<tr><th>Parity mode name in NVR</th><th>Serial data, represented by given amount of bits</th><th>Parity mode (none, odd, even)</th><th>Number of stop bits</th></tr>
<tr><td>8N1</td><td>8</td><td>N</td><td>1</td></tr>
<tr><td>8O1</td><td>8</td><td>O</td><td>1</td></tr>
<tr><td>8E1</td><td>8</td><td>E</td><td>1</td></tr>
<tr><td>8N2</td><td>8</td><td>N</td><td>2</td></tr>
<tr><td>8O2</td><td>8</td><td>O</td><td>2</td></tr>
<tr><td>8E2</td><td>8</td><td>E</td><td>2</td></tr>
<tr><td>7N2</td><td>7</td><td>N</td><td>2</td></tr>
<tr><td>7O2</td><td>7</td><td>O</td><td>2</td></tr>
<tr><td>7E2</td><td>7</td><td>E</td><td>2</td></tr>
</table>
</td></tr>
<tr><td>Baud rate</td><td>Baud rate defines the data speed through serial port interface – the rate value represents the number of symbols that can be transmitted within 1 second. Please refer to the baud rate setting of the analog device and choose exactly the same baud rate setting also in the NVR server. When setting up ACTi Zoom, PTZ or Speed Dome cameras using "ACTi" protocol, you may ignore the baud rate setting.
Available baud rates:
2400, 4800, 9600, 19200, 38400, 57600, 115200</td></tr>
</table>

Address ID	Address ID represents the identity of the device, only analog devices or speed dome cameras require this configuration. Please refer to the Address ID of the device and choose exactly the same baud rate setting also in the NVR server. Available value is from 1~99. By default, ACTi devices will use "**1**" as Address ID, it is suggested not to change it.

How to Do Live PTZ Operation

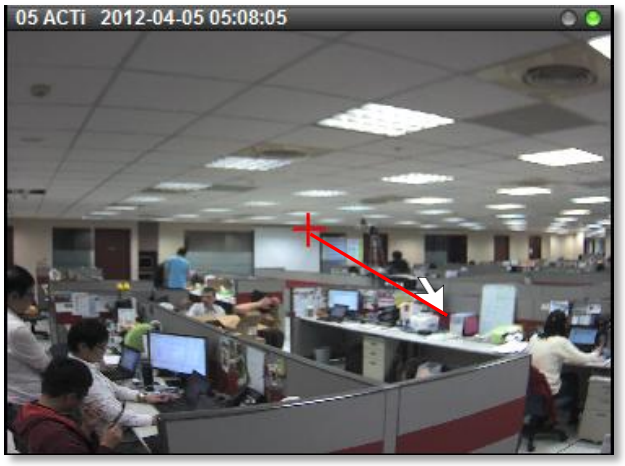
To configure PTZ settings, you need to view the live streaming while manipulating the PTZ controls simultaneously in this window.

There are two kinds of PTZ navigation:

Optical PTZ Navigation

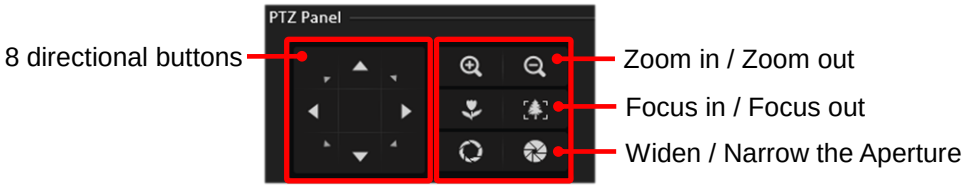
1. Get the live view from **Live Preview** window:
   Make sure the "**Enable PTZ**" is checked, and a red crosshair will appear on the **Live Preview** window. If the device is in Dual Stream mode, this window will always shows the stream set for live view. You may click on to switch between the streams.
2. Use the mouse to do the following PTZ operations:
   To execute optical **Panning** and **Tilting**, click anywhere on the live window to allow the camera to move in that direction. The length of the direction indicator is proportional to the Pan and Tilt speed. The farther you place the cursor from the center, the faster the Pan/Tilt movement.

   To execute optical **Zoom in** or **Zoom out**, scroll the mouse wheel forward to zoom in; scroll the mouse wheel backward to zoom out.



3. Use panel controls to operate PTZ movements:

   Click a button on the panel to start, the red crosshair will appear in the view.



Note

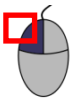
1. The zoom buttons are only applicable for those devices supporting optical zooming.
2. The focus buttons are only applicable for devices with controllable zoom lens, e.g. KCM5211. Please remember to turn off the autofocus mode on device firmware before using these buttons.
3. The device should be equipped with DC-Iris or P-iris and has been switched to manual iris mode before you use the buttons for widening or narrowing aperture.

Digital PTZ Navigation

Digital PTZ allows you to zoom into part of the video and enlarge it to display on screen. This PTZ function is applied to every camera model in NVR 3.0 system.

1. Get the live view from **Live Preview** window:

   Make sure the "**Enable PTZ**" is unchecked.
2. Click and drag a highlight rectangle over any channel, and the area highlighted will be displayed in the full live video window. In this mode, a picture-in-picture view will show in the lower right of live view window. A red rectangle will mark the currently enlarged view area within the full size video. You may click and drag the red rectangle to see another area.
3. To go back to the original full video view, just right-click on the minimized Picture in Picture view.

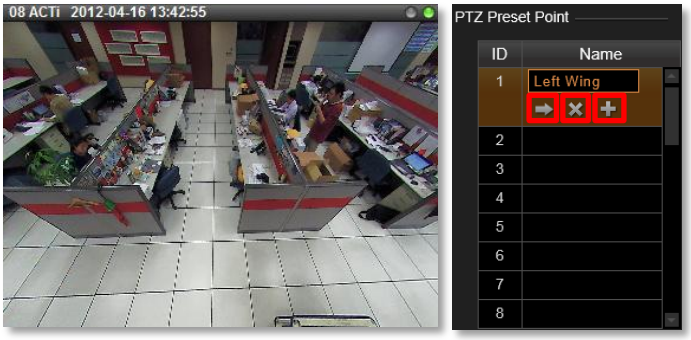

Draw Zoom area

Cancel Zoom area

Set PTZ Preset Points

With PTZ devices, you may define a view by where to look (through panning and tilting) and how close (through zooming) to zoom. Once these views have been saved in the NVR server as preset points, the device can always point to this view upon the event triggering or user's command.

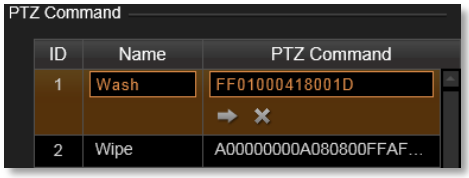
1. Go to **Setup** page →**Devices** tab, select the device from **Device List**, and click **PTZ** tab.
2. By PTZ operation, control the device to point at your desired view, and adjust the zoom level (if available). In **PTZ Preset Point** section, click a preset point name field to start editing the name, and then click "**+**" to set this point. After finishing setting your desired preset points, click "**Apply**". You may review the points you set by clicking "→" to go to the point, or "**X**" to delete it. To modify an existing point, select the existing point, then define a new view and click "**+**", and finally click "**Apply**" to save it.



3. After the preset points are set, they are available on **Live View** page →**PTZ control** panel.

Set PTZ Command

If your speed dome or PTZ device has a special function not supported in the standard protocol, you may input it in **PTZ Command** list and execute it. Ex: Activate the wiper to clean the window of the PTZ.



1. To add a PTZ action command, go to **Setup** page → **Devices** tab, select the device from **Device List**, and on **PTZ** tab, check "**Enable PTZ**".
2. In "**PTZ Command**" area, click in a command entry; input the name, command and then click "**Apply**" to save it. You may also click "→" to execute it or "**X**" to clear it.

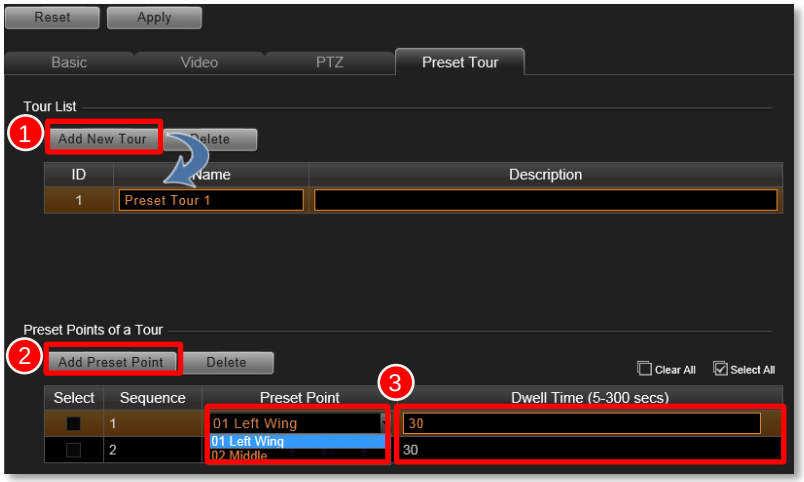
Set PTZ Preset Tour

Preset Tour is a preconfigured PTZ sequence that directs the camera to cycle through multiple preset points, including where to look and how long to look at each location. With this preset tour, your PTZ device can perform an automatic patrol to scan through your cared areas.

For example, a Preset Tour should include two or more preset points. Once a tour is initiated, the device will automatically point to the preset points based on the sequence and stay at that view according to the duration you set.

Before setting up Preset Tours, please make sure you have configured PTZ settings and set PTZ Preset Points. To start setting the Preset Tour:

1. Go to **Setup** page →**Devices** tab, select the device from **Device List**, and click **Preset Tour** tab.
2. In the "**Tour List**", as there is currently no existing tour, click "**Add New Tour**" to add one. The default tour name is "**Preset Tour 1**".
3. In the "**Preset Points of a Tour**" area, click "**Add Preset Point**" to add the number of points for this tour. The number of points may outnumber the actual preset points you set, for the same preset point might be gone through more than one time in a single tour. For each point, click in the "**Preset Point**" field to bring up the dropdown list, and select one preset point and define the dwell time which represents the time the device would stay in a certain view. Finally, click "**Apply**" to save the tour.



4. After a tour is saved, it is available on **Live View** page→**PTZ control** panel.

Note

The preset points and tour set in the NVR server are independent from those you set on device. If you have already defined certain preset points or tour on device, they will not be brought to NVR system. On the other hand, the settings on the NVR server will not write to the devices.

Configure Fisheye Cameras

With hemispherical lenses, fisheye cameras generate images at up to 360-degree width, which can cover all four corners of a room or both sides of a long aisle. As the original image captured by wide-angle lens is much distorted, to suit most monitoring purposes, the **Dewarping** process is required to alter the uneven lines and shapes before the images are displayed. Nowadays, the fisheye cameras come in two types in terms of the image-correction capability:

- Fisheye Cameras ***with*** in-camera dewarping function

  The dewarping takes place in camera before the video is output to the NVR server. Since the image correction counts on the camera itself, the NVR server will not bear much extra loading, which benefits the system requiring many of these fisheye cameras (e.g. ACTi KCM-3911, KCM-7911)

- Fisheye Cameras ***without*** dewarping function

  These fisheye cameras output only original global images, relying on the software algorithm processing provided by the NVR sever to correct the images. They are suitable for a system with limited bandwidth, for the NVR server processes and responds to User's ePTZ manipulation or demands for changing view modes immediately, without waiting for camera side to deliver a new frame (e.g. ACTi E96).

The NVR 3.0 system makes it possible to integrate both kinds of fisheye cameras into your system with the following advantages:

- Full support for all types of dewarped video stream output from fisheye cameras with in-camera dewarping capability.
- NVR's software algorithm can perfectly corrects the original fisheye images, generating **6 specific fisheye view modes** from User's usual perspective.
- Based on user's instant request for changing view mode or PTZ view point, NVR server will process the original fisheye image and respond to the client individually. In this way, what a client sees on Live View will not affect playback, recording, as well as another concurrent connection.
- The virtualized **ePTZ** manipulation also allows User to dynamically explore any region of interest within the hemispheric view like operating a genuine PTZ device.

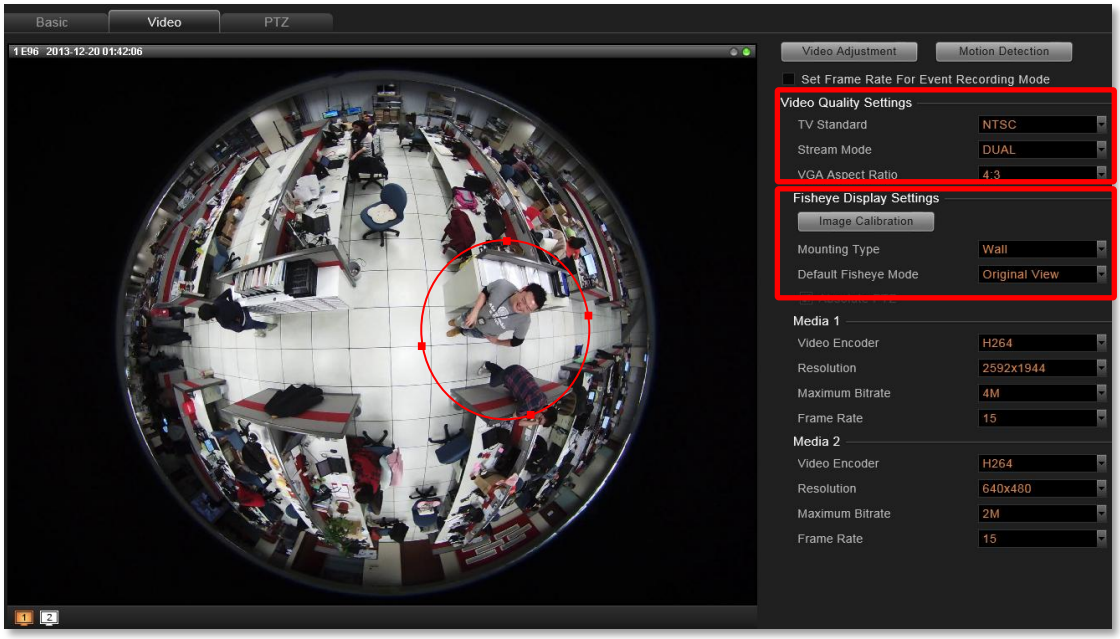
To make use of NVR's dewarping features for your fisheye cameras, please

1. Adjust **Video Quality Settings**

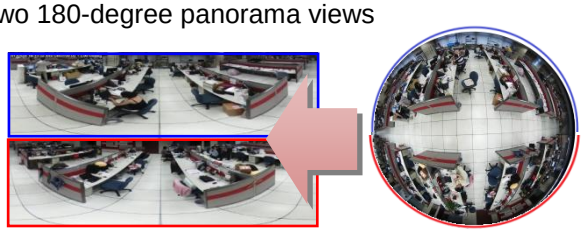
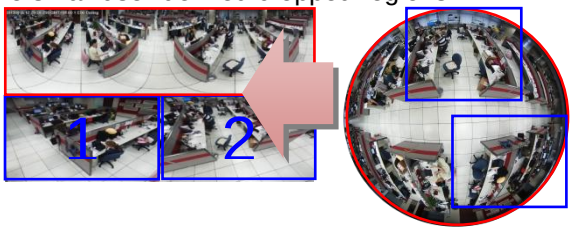
After the fisheye camera is successfully added, go to **Setup** page →**Devices** tab, select the device and then **Video** tab, make sure you set the **Stream Mode** as "**FISHEYE**" for a hemispheric camera (KCM-3911, KCM-7911) .This is to make sure this hemispheric camera is outputting fisheye original video stream as a mini fisheye dome camera does.

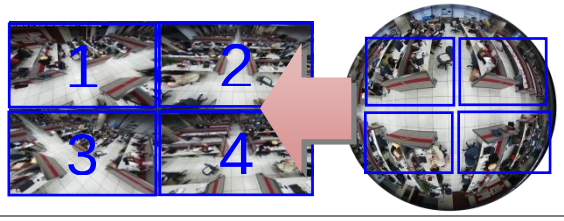
2. Adjust **Fisheye Display Settings**

Select your **Mounting Type**, and then **Default Fisheye Mode**. For a Fisheye Mode containing panorama view, you may want to configure the **Default Rotate X** (width of view) and **Default Rotate Y** (height of view) configurations.



You may adjust the dewarped area by clicking "**Image Calibration**". In the edit mode, move or resize the red ring to define the dewarped area, and then click "**Set**" to save the setting.

Fisheye Mode	Description	PTZ Navigation
Original View	The very raw fisheye view	Digital PTZ
Dewarping	One large user-defined cropped area	ePTZ
Panorama	360-degree panorama view for ceiling mount 180-degree panorama view for wall mount	Digital PTZ
Double Panorama	Two 180-degree panorama views 	Digital PTZ
Panorama /Focus	One panorama view Two small user-defined cropped regions 	ePTZ

Quad	Four small user-defined cropped regions 	ePTZ

3. After the configuration is done, remember to click "**Apply**" to save the settings.

Schedule Recordings

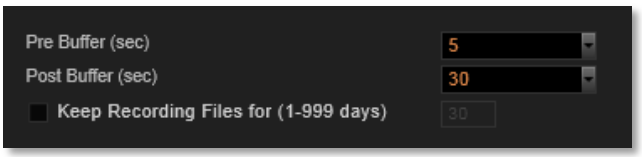
Unlike the traditional analog surveillance system, the IP surveillance system provides a target-oriented recording schedule for devices; the view of each device can be recorded based on your required time segments and event types. For example, you may have a camera installed on the office ceiling do continuous recording during work hours, and record only upon the triggers (incidents that detected by system) at night. In this way, the system does not waste disk space storing meaningless parts, and you save much effort browsing playback for specific events.

For the device's recording schedule, the NVR 3.0 system supports Schedule recording and Event recording modes, which are set up on a week-based timetable; the event-handling schedule can also be configured on it. This section describes how to set up the recording schedule for the IP cameras / video servers.

Configure the Recording File Properties

Before setting the recording schedule, you may define (1) where the recordings are stored, (2) how long an event recording is and (3) how long a recording file will be kept in the system.

1. To set the saved recordings folder, go to **Setup** page→**Storage** tab, and make sure you have assigned the disk drives to store recorded files. For related recording settings, please refer to Storage Management on page 103.
2. To define how long an event recording is and the recording's lifecycle, go to **Setup** page→**Schedule** tab, and select the device from **Device List**, and then a week schedule will appear on the right. Configure the recording file related settings. The settings below will make an event recording as long as 5+30 seconds, which will be kept on server for 30 days.



Attributes Explanation

Field Name	Description
Pre-event Recording Buffer (sec):	The NVR server keeps a short cache of video received from the devices. If an event is triggered, the NVR server will automatically store the pre-event buffer along with the recording of the event itself. Available choices are **0**, **3**, **5** seconds.

Post-event Recording Buffer (sec):	This will determine how long after the event is triggered should be included in the event recording file. Available choices are **10**, **30**, **60**, **120**, **180**, and **300** seconds.
Keep Recording Files for (1-999 days):	The NVR server will keep recording file of specific device for the number of days you set here. The default value is **30**, and if you want to modify it, please check the box to start configuring it. Available value is among **1~999** days.

Tip

How to make proper storage arrangement

In NVR 3.0 system, there are two file-deleting mechanisms you can use based on different needs. If both rules are set, the one with the threshold to be reached earlier will execute the deletion first.

1. "**Keep Recording Files for (1-999 days)"** – Set this rule if you have the concern on how long the recordings are kept, especially when you don't want the old recordings to stay longer in the system than a certain period.
2. **"Reserve space"** in the **Disk Drive List** on **Setup** page →**Storage** tab - If the disk space is more critical in your system, please give an approximate value here, the system will always reserve this amount of space to store the newer recordings.

Given that you set the **Reserve space** as **30G**, while **Keeping Recording Files** setting is **5 days**, certain recording file will be deleted when it has been kept on disk for 5 days, despite that there is still plenty of available disk space.

Before setting up the rules, you can make use of a handy storage calculator provided by ACTi to find out the estimated storage your system requires on ACTi corporate website.

Set the Schedule

Here you can configure camera's recording schedule on 7 days / 24 hours basis. The schedule is split into segments of 20-minute length. By default, once a device is added to the system, its schedule is automatically set to full time schedule recording and event handling. You should configure it according to your system plan.

Go to **Setup**-**Schedule** tab, on **Schedule Setting** panel:

1. Select the recording mode from "**Recording Mode Bar**"

   Schedule Recording : Continuously record that channel.

   Event Recording : Record a period of the detected motion event. Please make sure you have configured the motion settings on **Setup** page → **Device** tab beforehand.

   Event Handling : Event handling is activated.

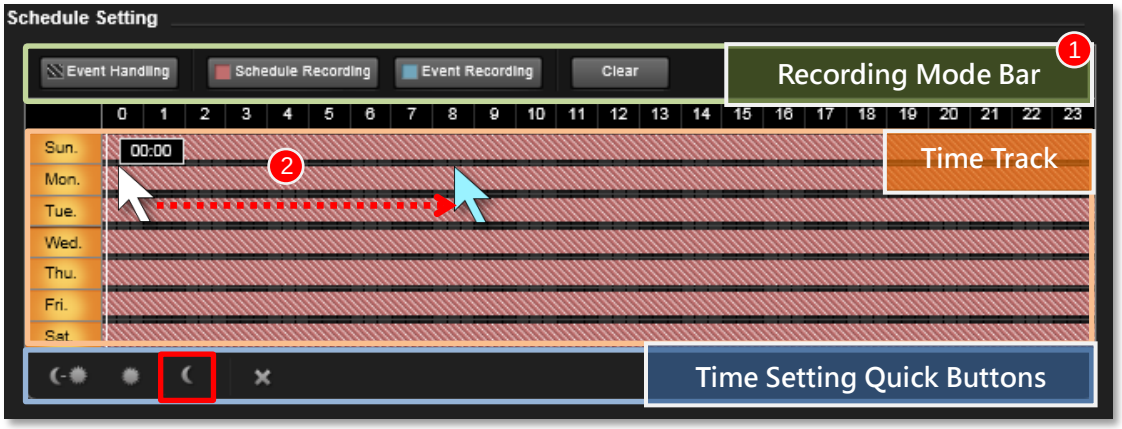
   (Please refer to How to Edit an Event Rule on page 92 for **Event Rules** settings)

   Clear : Clear the setting

Schedule Recording + Event Handling : Continuous recording with event handling

Event Recording + Event Handling : Event recording with event handling

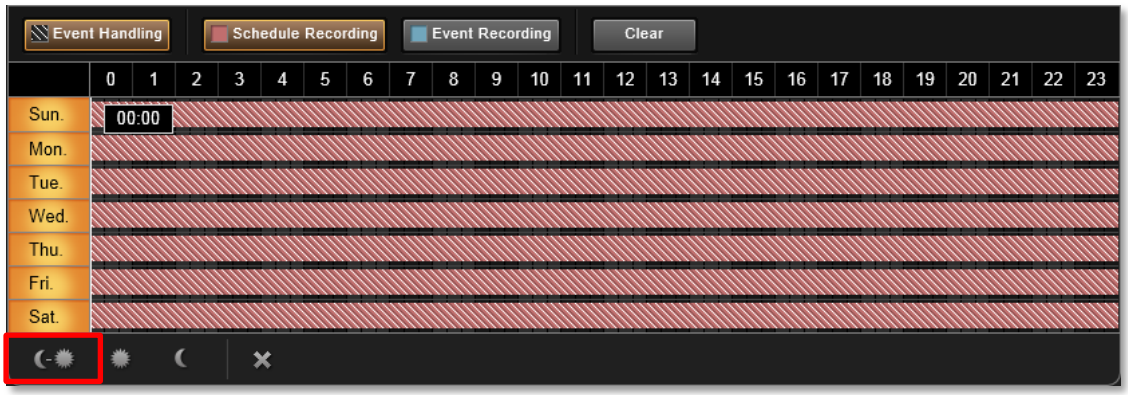
2. Click and drag over the "**Time Track**" to set time period.



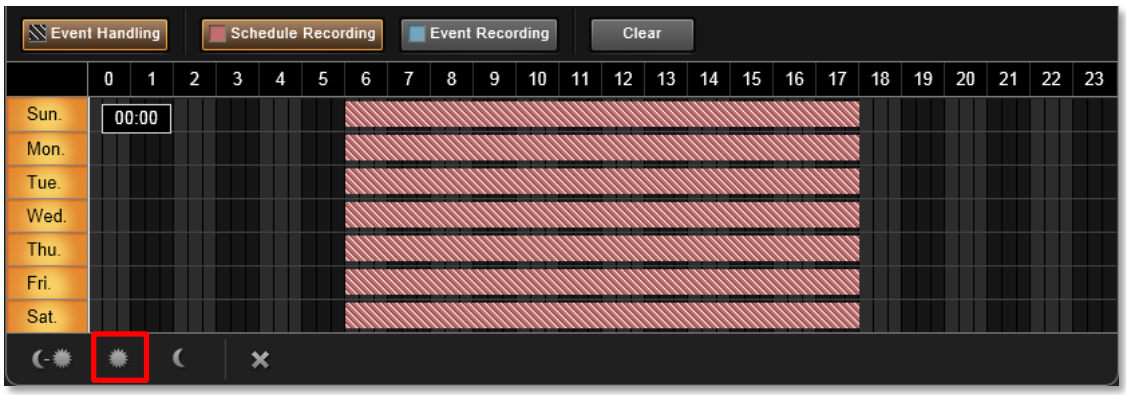
Use Time Setting Quick Buttons to Set the Time in One Click

Select the recording mode, and then click one of these buttons to apply the mostly-used time settings.

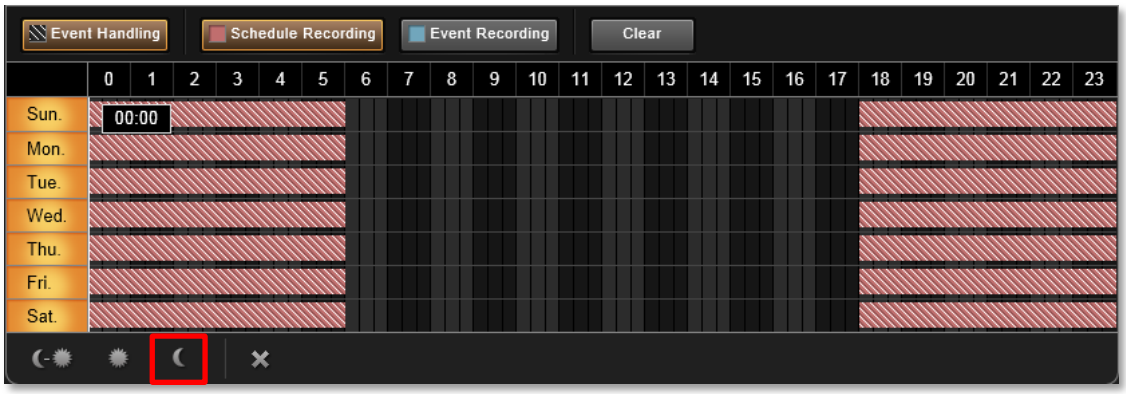
Click to apply schedule **for all day**.



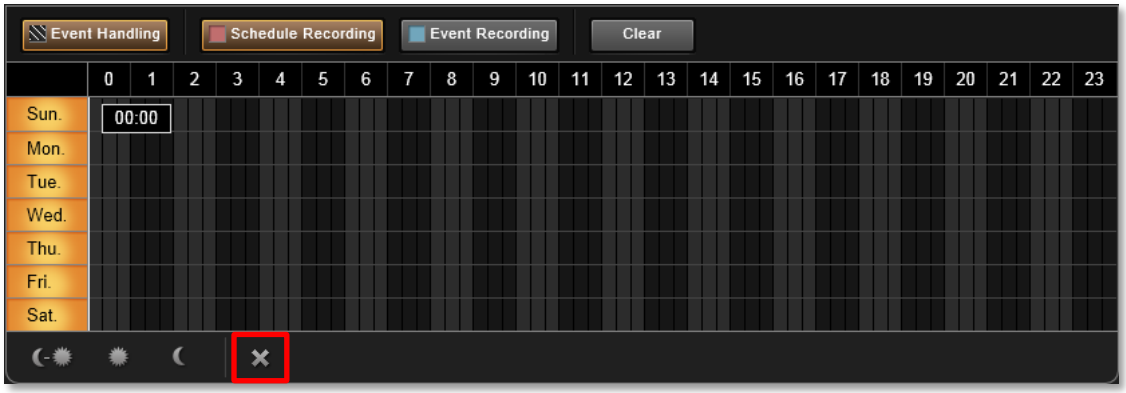
Click to apply the schedule **from 06:00 to 18:00 every day** with the settings for the rest of the time track being cleared.



Click to apply schedule **from 18:00 to 06:00 every day** with the settings for the rest of the time track being cleared.



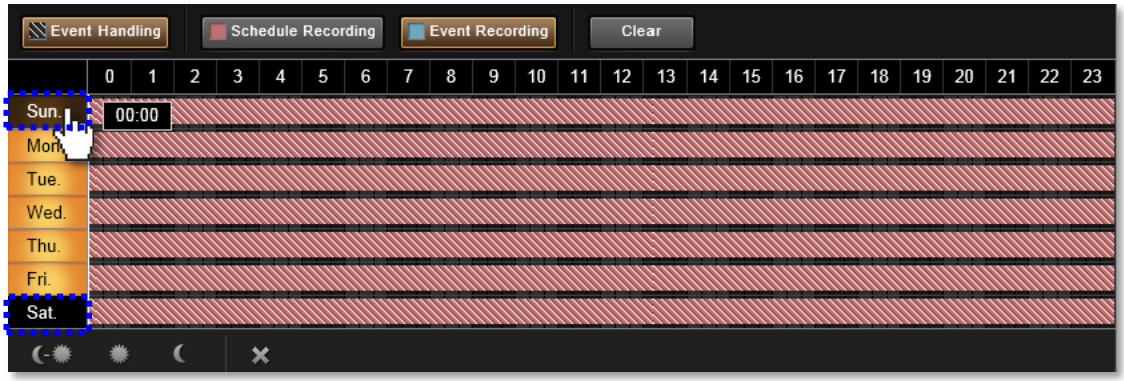
Click **to clear all schedule setting in this device**.



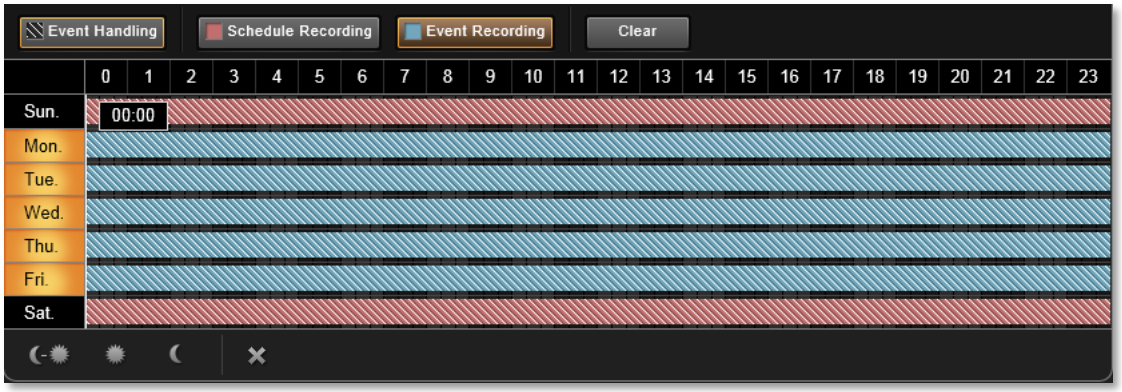
Lock Specific Days

Clicking the day of the week will lock/unlock that day from schedule setting. You can shield schedule on a certain day from being changed by changes in other weekdays. You may easily set just the weekdays or the same time over the same week this way. To do this:

1. Click the days to shield them.



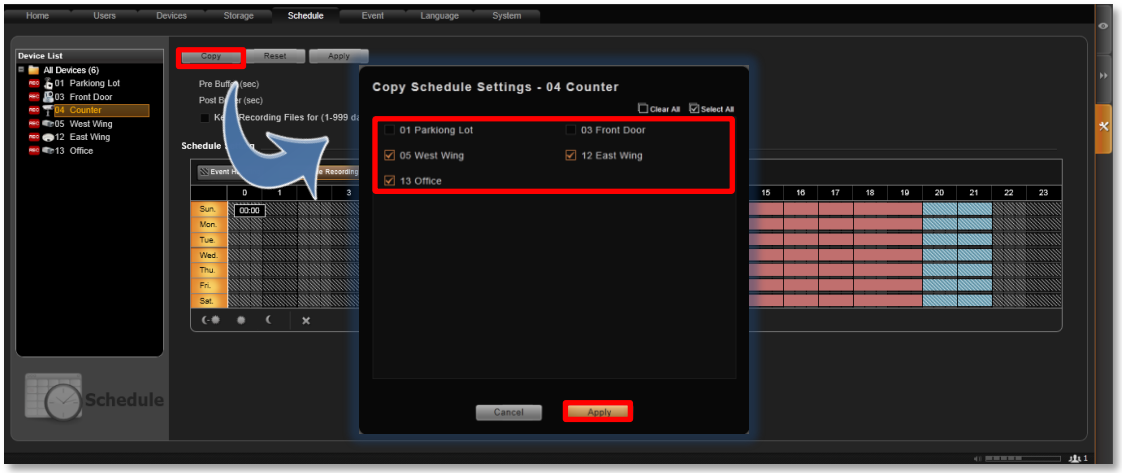
2. As you drag any settings over the time track, it will not apply to those shielded days.



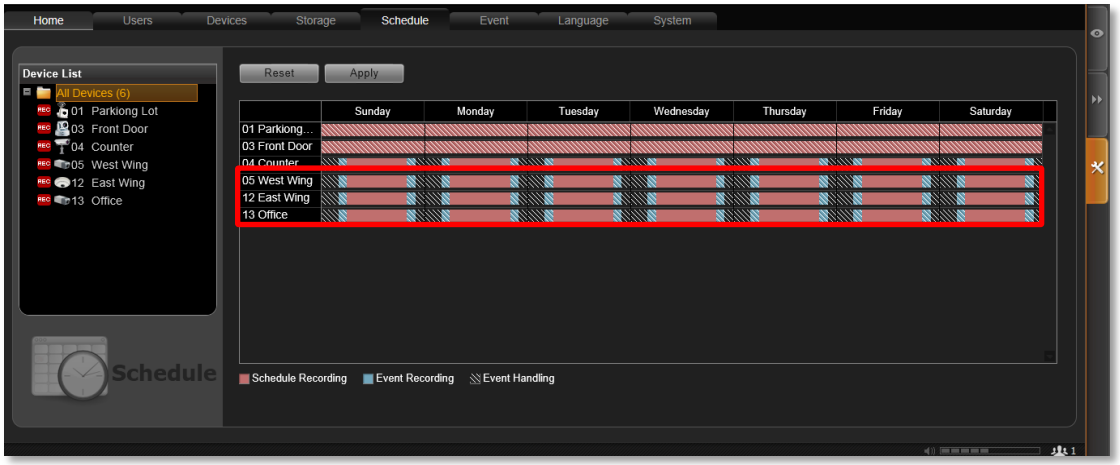
Copy an Existing Schedule to Others

With plenty of devices in your system, it happens that you want to apply the same schedule to multiple devices. After creating a schedule for one device, you can copy it to other cameras.

1. Go to **Setup** page →**Schedule** tab, on **Device List**, select the device from which you want to copy the schedule settings.
2. Click the "**Copy**" button.
3. On the popup window, select target devices to which you want to copy the schedule settings.
4. Click the "**Apply**" button.

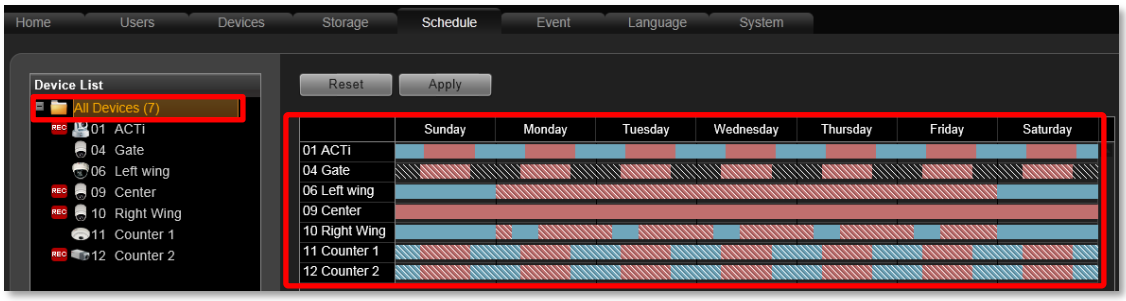


To check the result, go to **Schedule** tab, and click **All Devices** on **Device List**.



View the Entire Recording Schedule

On **Setup** page →**Schedule** tab, click **All Devices** on **Device List**, and an overview of all devices' schedules will be listed on the right.



The below list explains the status of different bar patterns:

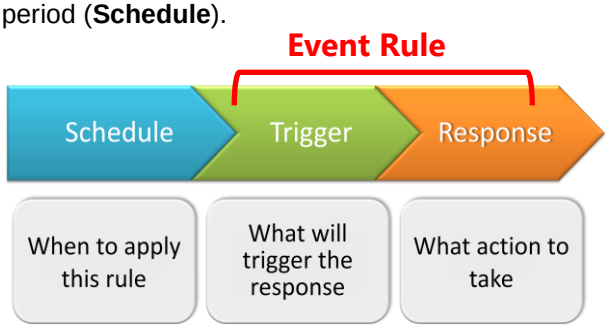
Pattern	Recording Function Description
	Schedule recording. During this period, the system will record continuously.
	Event handling. During this period, the event rules you configured are active.
	Schedule recording and Event handling are both active during this period.
	Event recording. During this period, only detected events (e.g. Motion/PIR) will be recorded .
	Event recording and Event handling are both active during this period

How to Know if the Recording is Proceeding?

As the recording is taking place, you can observe the status on the **All Device List**. There will be an icon appearing in front of the device. In **Playback**, you can drag the playback bar to current time position to check the latest recording.

Event Management

When something happens on the camera site, such as someone walks by, the door opens or closes, a fire breaks out or the sun goes down – these are all **Events**. Events which occur in the environment or were preprogrammed in the camera may be used as **Triggers**. Triggers cause the device to react with **Responses**. The link between trigger and response is governed by **Event Rules**. Event rules become active or inactive based upon a weekly **Schedule**. Each event rule detects one specific trigger and may initiate multiple responses. An example rule would be for the NVR server to send emails to alert the supervisor (**Response 1**) and trigger alarm (**Response 2**) when motion detection from camera is triggered (**Trigger**) during the event handing active period (**Schedule**).



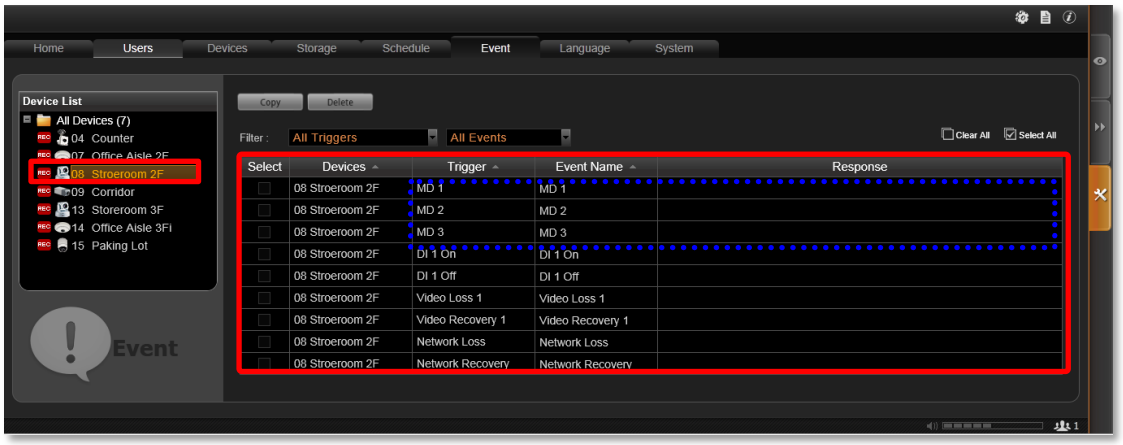
How Does NVR Handle Events

In NVR 3.0 system, each device can be involved in several event rules. As different device models have different capabilities, the supported event trigger types would vary. For example, a PIR built-in camera can execute a PIR-triggered event rule, while this option is not provided for other models without this feature; similarly, the supported response types would vary by device models, such like Go-to-Preset behavior can only be executed by PTZ devices. The below chart shows the NVR server supported **Trigger** types and **Response** types. Once a device is added to the NVR server, the server would create empty rules with compatible trigger types for you to configure.

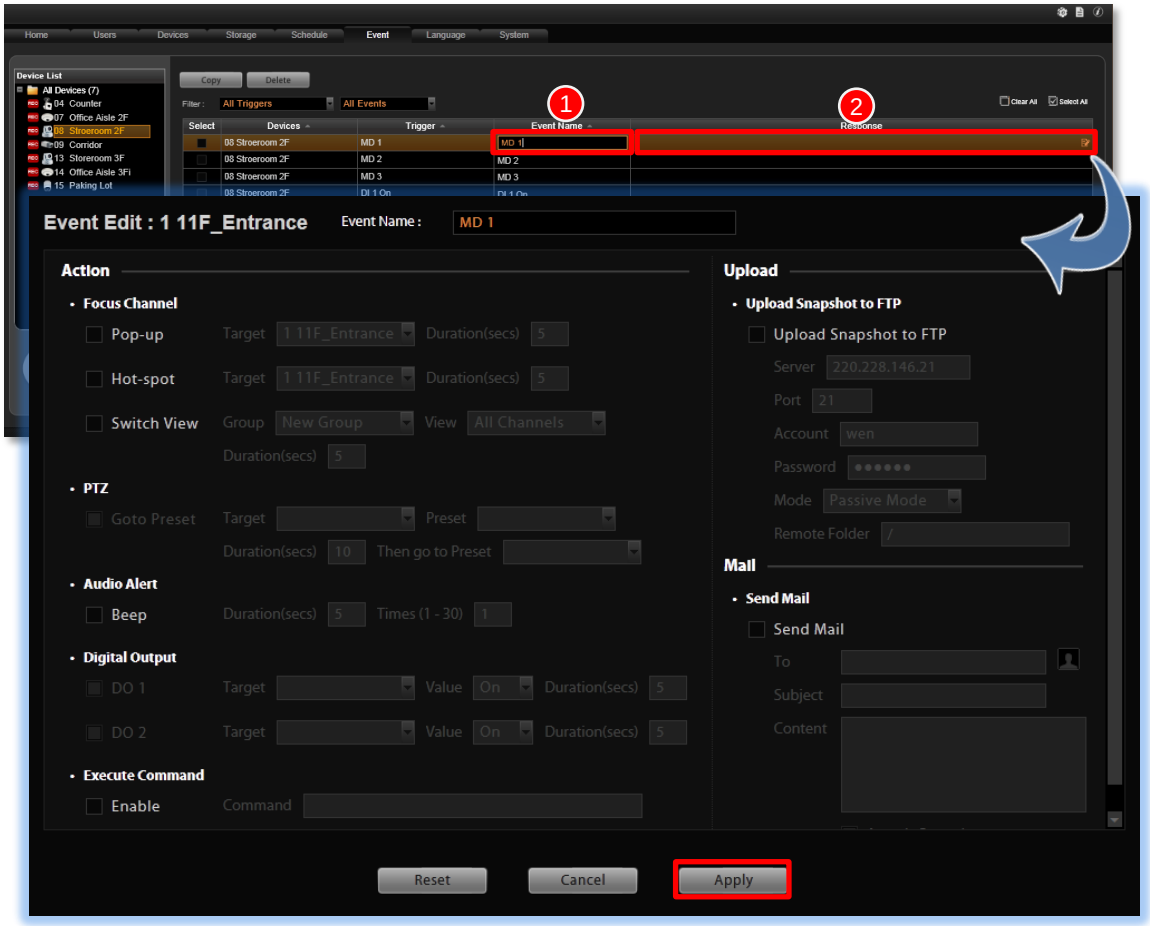
Trigger Type	Response Type
Video Motion Detection	Focus Channel in Live View
Digital Input	Make Device Pan/Tilt/Zoom
PIR Detection	Audio Alert
Video Loss	Trigger DO Device
Video Recovery	Execute URL Commands
Network Loss	Upload Snapshots to FTP
Network Recovery	Email Notifications/ Snapshots

How to Edit an Event Rule

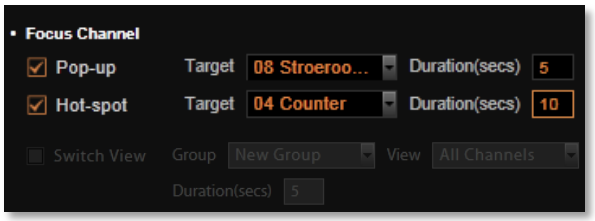
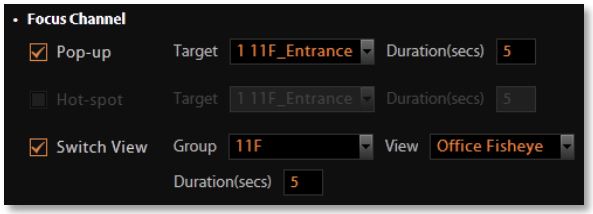
1. Go to **Setup** page → **Event** tab. All the editable event rules are listed in the device ID order.
2. Select a device from the **Device List** on the left. Based on the trigger types this device supports, the corresponding events rules are listed accordingly on the right. In this example, this selected camera model supports three motion detection regions, and hence three MD trigger event rules are available.

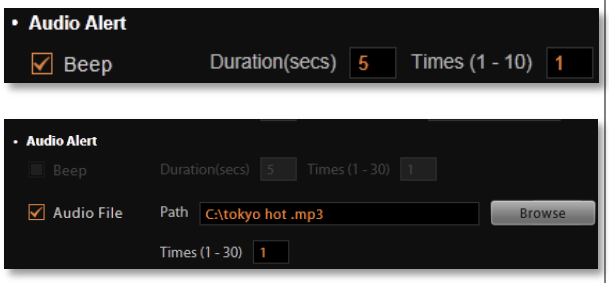
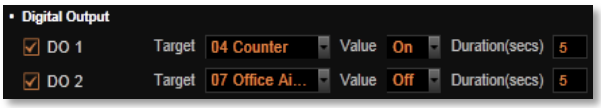
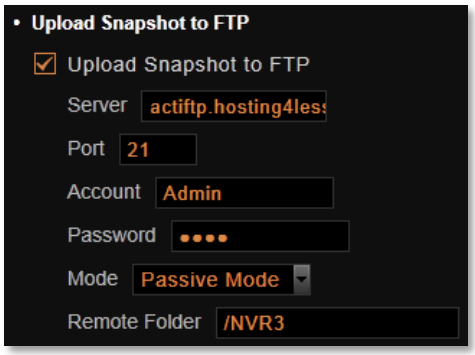


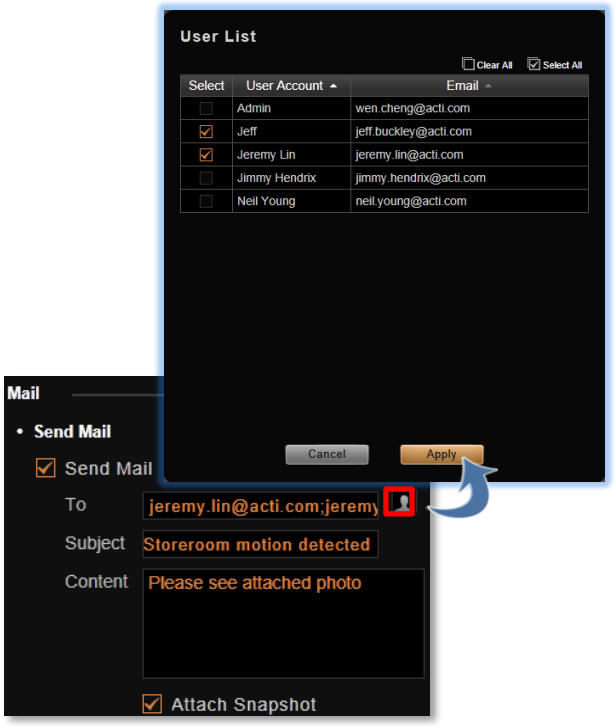
3. Highlight the rule you wish to edit. Click in the "**Event Name**" column to edit the event name, and then double-click the "**Response**" column to edit the response action.



You can enable multiple responses by first checking the boxes to enable the items:

Action Items	Function Description
 	This kind of action will focus your attention on the channel when triggered. **Pop-up**: Brings up event pop-up instant playback window of selected channel upon trigger. You may also define the display duration of video on the window. **Hot-spot**: Displays video in Hot-Spot window (red flashing frame) upon event. You may also define display duration of video on the Hot-spot window. **Switch View**: The current Live View will be switched to another one for a while. To enable this option, you will need to customize and save Views on Live View screen first. You may also define duration of the temporary View. Only **Public** Views are selectable for Switch View event rule. **Hot-spot** and **Switch View** responses cannot be executed at the same time.
	Upon being triggered, specific camera can make PTZ movements like going to specific PTZ presets as responses. You may set both the start / end point and the duration. **This action is only available when you have set the preset points for a PTZ device**.

	Makes the NVR server play beep sound or an audio file for a number of repetitions. On NVR3 Workstation client computer, you can upload a WAV file or an MP3 file as the alert sound, and set how many times this audio file is played after the event occurs. (This NVR server has to be already saved on Server Site list; please refer to G. Server Name/Server Sites List on page 44 for how to save a server site). Please note that Beep and Audio file responses cannot be executed at the same time.
	Setup the DO to ON or OFF upon trigger, only the devices supporting DO functions can be the target devices.
	Enable the NVR to execute a certain command upon this event. You can use it to integrate the NVR's event handling with other programs. Enter the path of the command to be executed upon event.
	Enable the NVR to upload snapshots to a FTP site upon this event. The default FTP settings can be set in advance in **Setup** page → **System** tab → **Settings** → **FTP Settings**. You may set another FTP destination here for this single event. Please also make sure the FTP server setting is correct and the folder access rights are properly configured.



Enable the NVR to send email notifications via the SMTP server. The default SMTP and sender's email settings can be set in advance in **Setup** page → **System** tab → **Settings** → **Email& SMTP Settings**.

1. Type one or more recipients' email addresses in "**To**" column (if more than one, please separate them by "**;**" symbol) or click the icon to select recipients from existing the NVR User list. The Email address should be set in advance (in **Setup** page → **Users** tab → **Users**) for an NVR User so that it can be selected in this list.
2. Edit the email subject and content.
3. Choose to attach a snapshot or not. If the event trigger type is **Video Recovery** or **Network Recovery**, this function is disabled.

4. After configuring the actions, click "**Apply**" to save this response.
5. Go to **Setup** page→**Schedule** tab and set the **Event Handling** schedule for this device. Event responses will only be triggered when the trigger time falls within either the **Event Handling** recording or the **Event Handling with Schedule** recording period.
6. To check if this rule is successfully set, please make sure you have properly configured the involved (1) trigging side settings like **Motion Detection Region**s or **DI**, and (2) response side settings like **PTZ Preset Points**, **SMTP Server** and **Email Recipients**, **FTP Server** or **DO**. Then set the **Event Handling** schedule for current time and trigger this rule.

Note

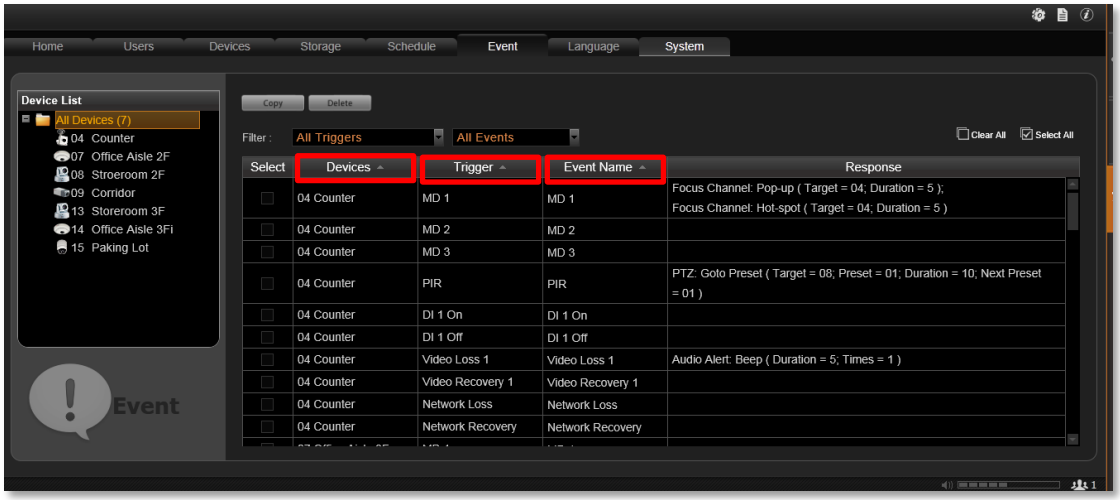
1. **Sending email**, **Uploading snapshot to FTP** and **Executing command** actions are executed on the NVR server, not from the client computer.
2. There must be video stream from the device when the event happens for event responses to work.
3. Internet Explorer browser may become unstable due to frequent pop-up instant playback windows, please avoid setting the "**Pop-up**" action as the event rule for a device which is too frequently triggered.

Manage the Event Rules

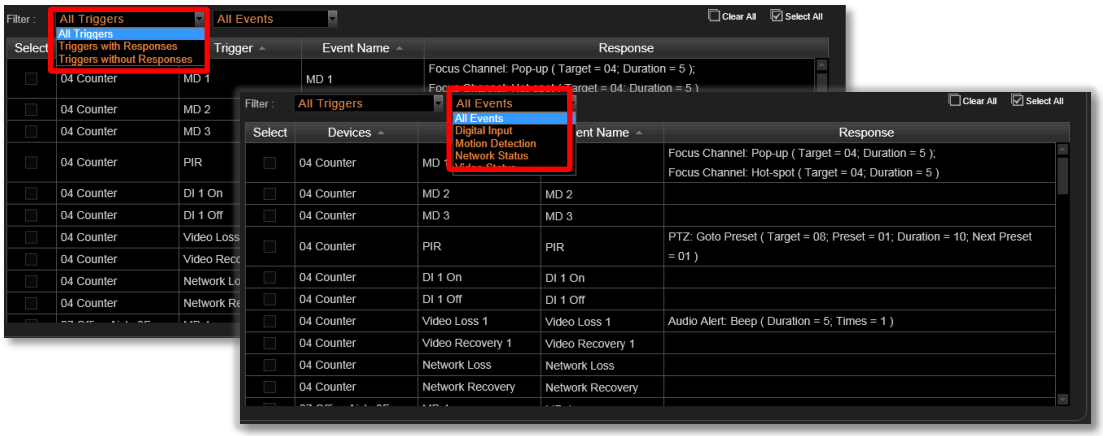
Event List panel gives an overview on event rules set on the NVR server. Go to **Setup** page → **Event** tab → select **All Devices** on the left. As the entire available rules of all devices are listed here, you may want to sort out some of them from the long list.

View the Event Rules

To sort by **Device** name, **Trigger** type or **Event Name**, click the titles to list the entries in ascending or descending alphabetic order.

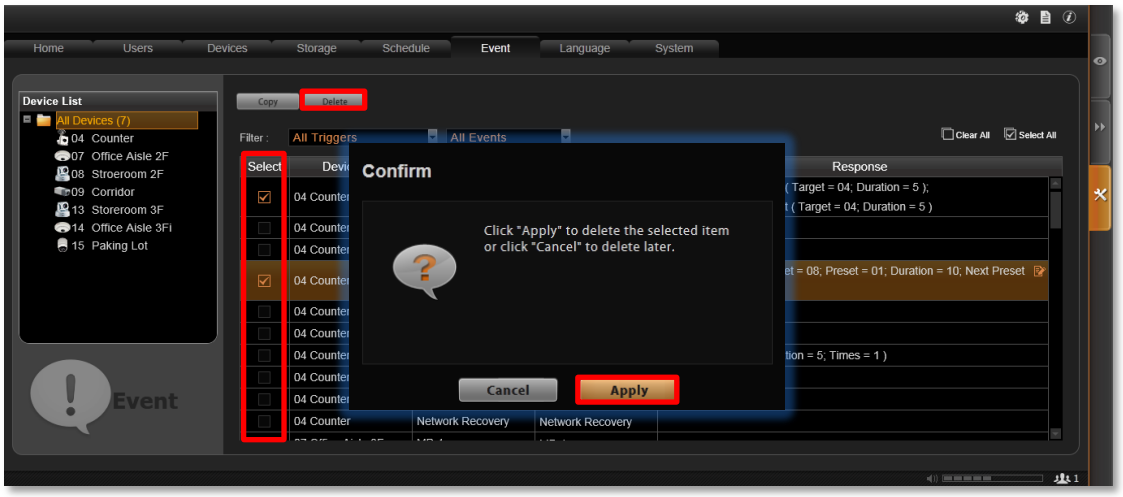


To filter out the configured events, select from the "**All Triggers**" dropdown list; or filter by the event type by selecting from the "**All Events**" dropdown list.



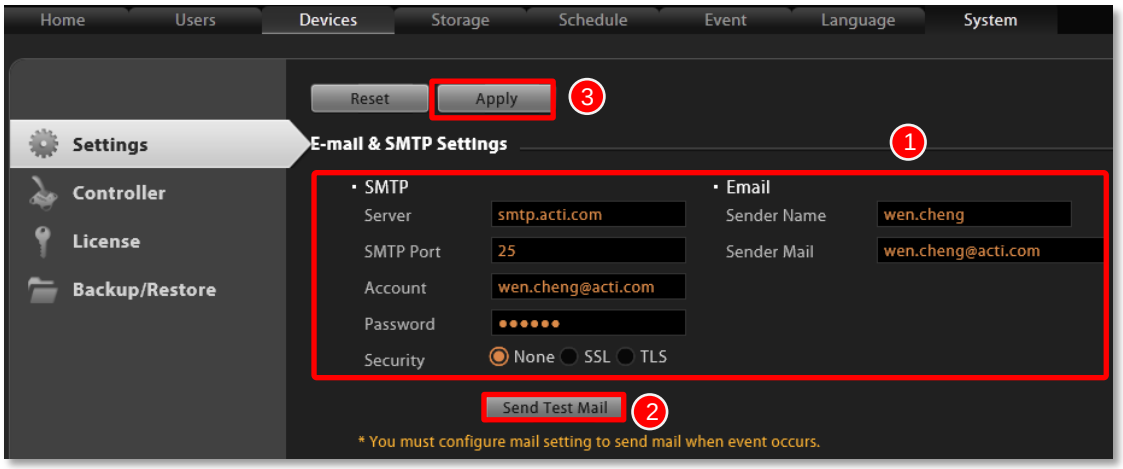
Delete the Event Rules

On **Event List**, select the rules you wish to delete, and then click "**Delete**" to clear this rule.



How to Setup SMTP Settings for Event Rules

The NVR 3.0 system supports email notification for **Event Handling** sent through an SMTP server. You can specify the email and server settings here.



1. Go to **Setup** page→**System** tab→**Settings** → **Email& SMTP Settings**.
2. Fill in **each** of the following fields.

Field Name	Description
Server	Input the sender's SMTP server address. Only alphabets, numbers, and the symbols (.), (_), (-) are valid.
SMTP Port	Set the SMTP port. The allowed value is from 1~65535, and default is **25**.
Account	Input the name of the SMTP server account. Only alphabets, numbers, and the symbols (@), (.), (_), (-) are valid.
Password	Input the password of the SMTP server account. Only alphabets and numbers are valid.

Security	Certain webmail providers provide the SSL/TLS-encrypted SMTP connections to secure your data when sending/receiving emails. Please check if the SMTP connection settings you use (especially the **SMTP Port**) now require either SSL or TLS to be enabled.
Sender Name	Input the name or title of the sender. You may input a name different from the account name.
Sender Mail	Input the sender's email address, and it should the same account you set for SMTP server.

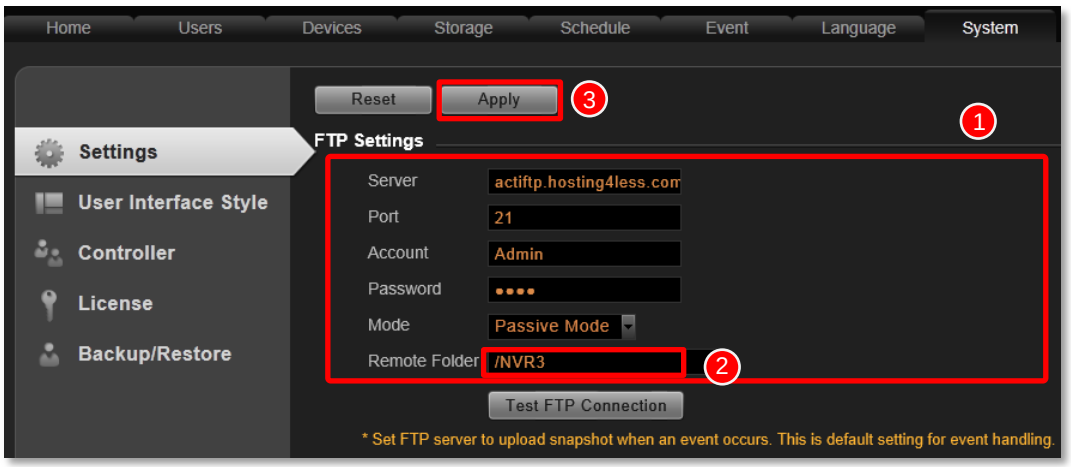
3. As all necessary information is filled in, click "**Send Test Mail**" to try sending an email according to your settings, and then log in to your SMTP server to check incoming emails. If the test email is sent successfully, the NVR server is ready to send out emails.
4. As the settings are confirmed, click "**Apply**" to save.

How to Setup FTP Settings for Event Rules

The NVR 3.0 system supports uploading snapshots to FTP servers for Event Handling.

You can specify the email and server settings here.

1. Go to **Setup** page→**System** tab→**Settings** → **FTP Settings**.



2. Fill in **each** of the following fields.

Field Name	Description
Server	Input the FTP server address. Only alphabets, numbers, and the symbols (.), (_), (-) are valid
Port	Set the FTP port. The allowed value is from 1~65535, and default is **21**.
Account	Input the name of the FTP server account. Only alphabets, numbers, and the symbols (@), (.), (_), (-) are valid.
Password	Input the password of the FTP server account. Only alphabets and numbers are valid.

Mode	The FTP works in two very different manners, **Active** mode and **Passive** mode. If your FTP server is behind the firewall or a NAT router, you have to use "**Passive**" mode.
Remote Folder	Input the upload path of the file. Default will be "**/**" to represent the root folder.

3. As all necessary information is filled in, click "**Test FTP Connection**" to test the connection. If the NVR server pops up a "**Testing FTP connection was successful**" message, the NVR server is ready to upload to this FTP server.
4. As the settings are confirmed, click "**Apply**" to save. The FTP settings here will be default for every event rule.

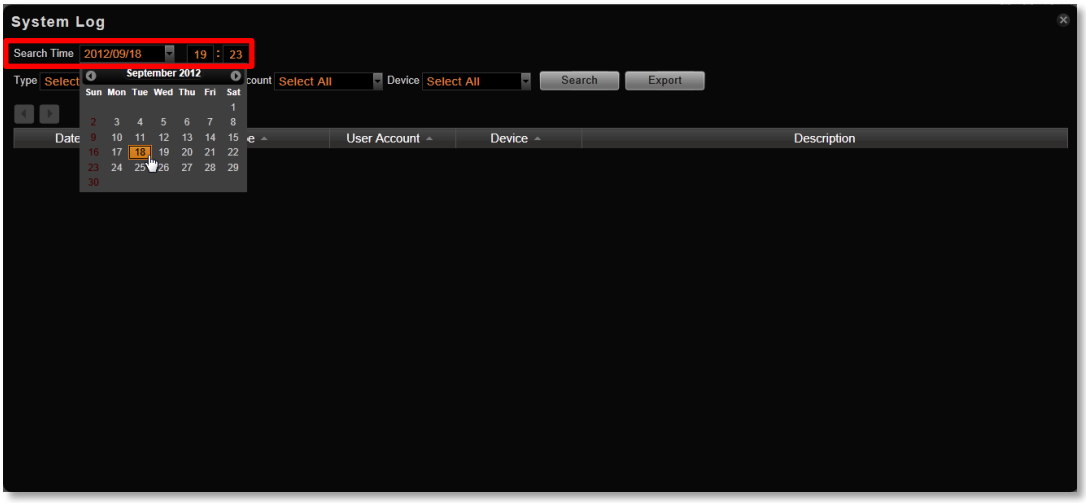
System Log

The activities performed by logged-in users are recorded on the server as **System Log**. With the access permission, a user may view, search and export this record for analysis or investigation. This section will provide the instructions on how to read and search data in the system log.

"**System Log**" is one of the resident buttons on top of the NVR server user interface, click it to enter search window.

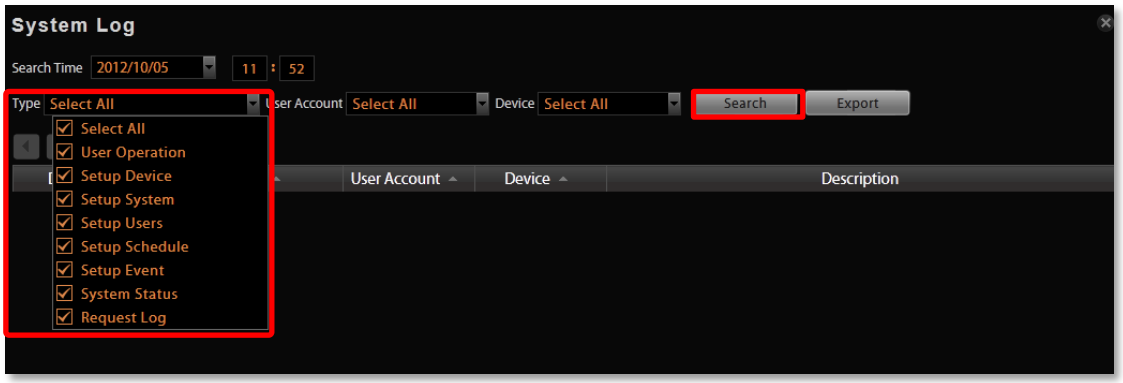
Define Search Time

You need to first define the time of the logs you would like to search for. On **Search Time** bar, define the date and time. Default is your current client time.



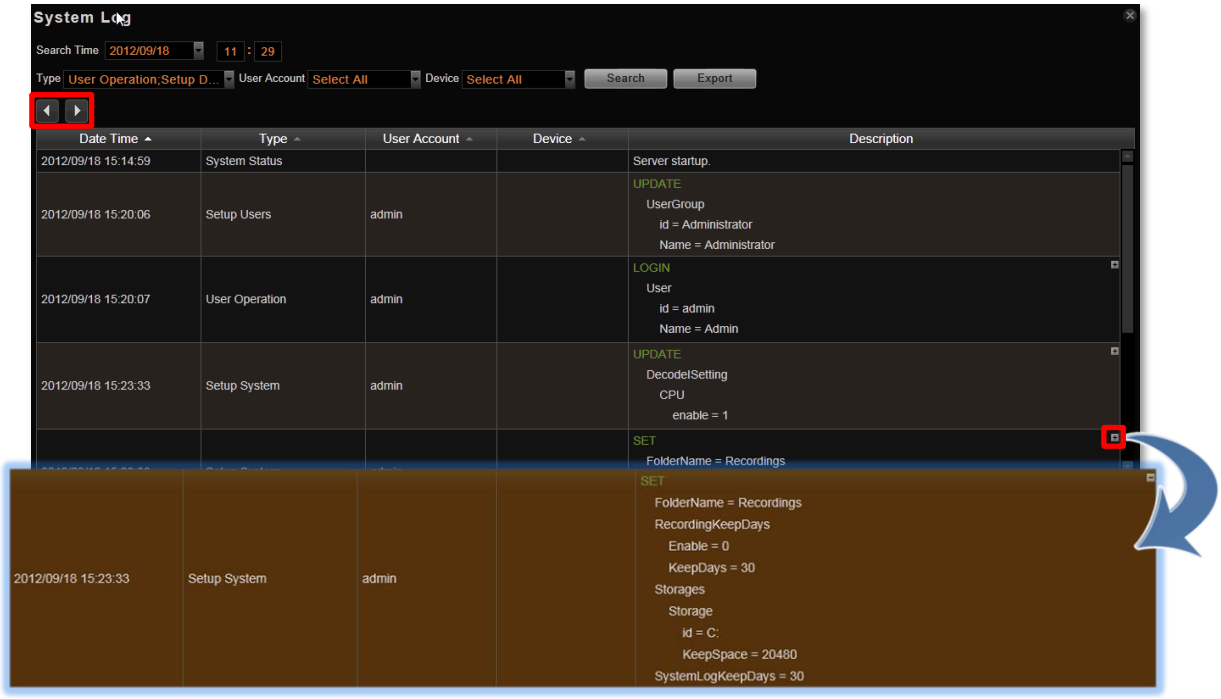
Choose Log Type

You may filter the logs by **Type**, **User Account**, and **Device** by selecting from the dropdown list, **and** then click "**Search**". By default, all types are selected.

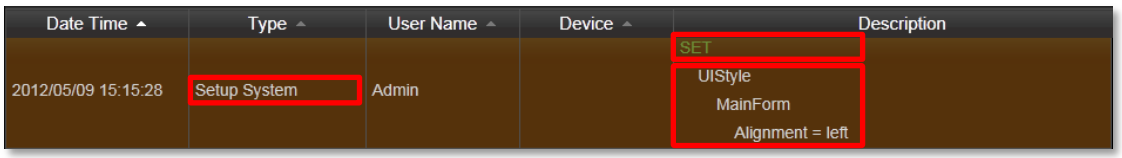


Read the Log

The search result will show 1000 records before and after your query time. You may click the pagination buttons ◀ ▶ to navigate earlier or later records. If there is an icon ⊞ on the right top corner of an entry, click it to view the full description content.



A log entry contains several kinds of information including **Date Time**, **Type, User Account**, **Device** and **Description**. Check **Type** and **Description** fields to know what the user has done or what happened to the whole system. **Type** field shows what major functions user engaged in, and **Description** field narrates how the change was done (in green font color, uppercase) and the result (in white font color).

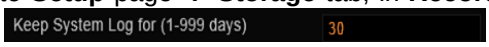


The following user behaviors are recorded in the NVR server:

Type	Description
User Operation	Login, Logout, Manual Record,Trigger DO
Setup System	Recording Configure, Storage System Setting
Setup Users	User – Add, Delete, Modify User Groups – Add, Delete, Modify
Setup Schedule	Modify
Setup Event	Modify

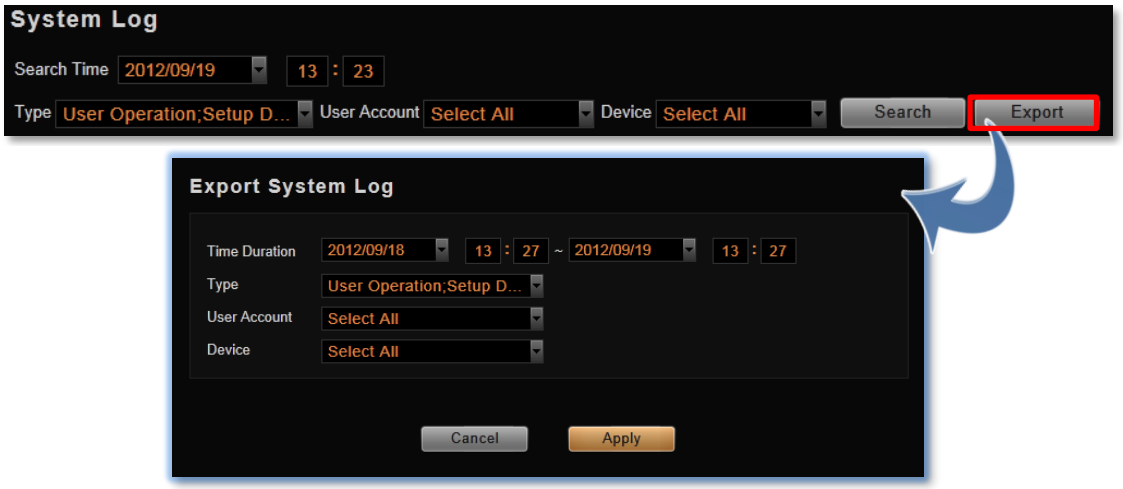
System Status	Server start up, disk is full, disk is not found, disk is available
Request Log	Time, source IP address, /SYS/SystemMgmt/xxxxx, 200

Note

If the pagination button appears to be disabled, that means no more records found on the NVR server. By default, the server will keep the logs for 30 days. If you wish to adjust the period, please go to **Setup** page → **Storage** tab, in **Recording Settings** section, key in the value in this field: 

Export the Log

Click "**Export**" button to export the log as .csv file. You can specify the time duration, type, user account and engaged device of the logs, and click "**Apply**".

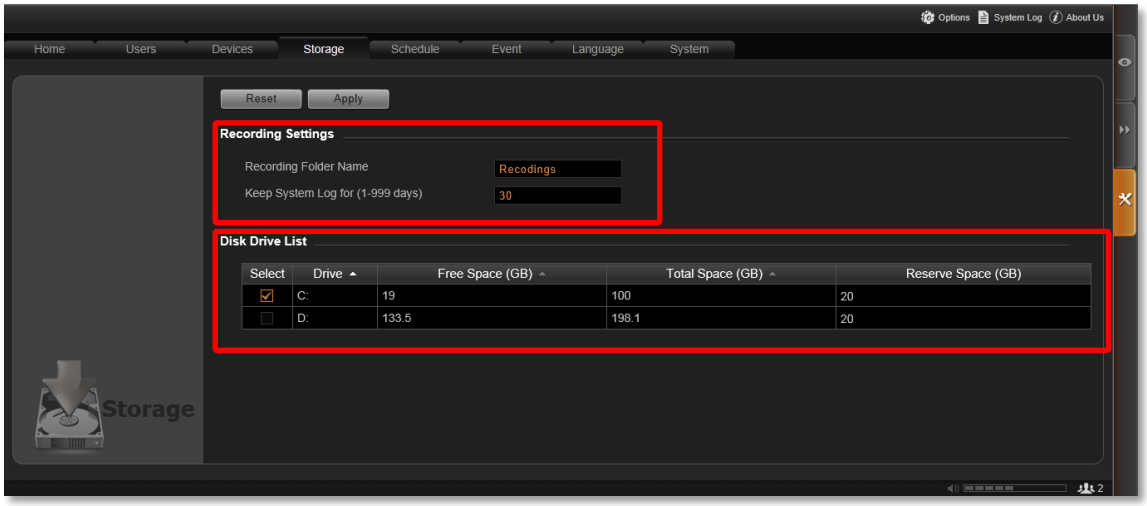


Storage Management

This section describes how to manage storage space in the NVR server. Please note that this section only deals with the overall storage rules rather than the storage of individual channels.

Please note that as the NVR continuously writes and deletes file from the disk drive, using a removable disk may risk losing the recordings when the device is removed while being accessed.

Go to **Setup** page→**Storage** tab.



Change Recordings Folder Name

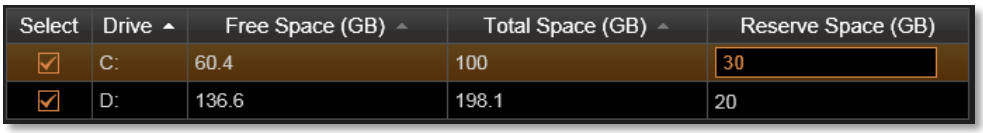
In "**Recording Settings**" section, you may change the name of video recordings folder. The video files are saved in a folder named "**Recordings**" under hard drive root directory. You may change the name here.

Set System Log Lifecycle

System Log is the record of user activities and events that take place on the server. In "**Recording Settings**" section, you may set how long this record will be reserved on the server. Default is **30** days.

Set Hard Drives for the Recorded Files Deletion Rule

1. **Disk Drive List** displays the detected hard drives in the NVR server. You may select the storage location of the recording files and set the deletion threshold. By default, the NVR server will select **C** drive as storage location.



2. After selecting the disk drive, please set the deletion rule. There are two ways to delete recordings, and when both are active, the NVR server will start to delete old files when any of the criteria is met.

   (1) Reserve the recordings for a number of days, and delete files older than this period by 1 GB at a time. Please go to **Setup** page →**Schedule** tab to set it.

   (2) Reserve the recordings until the disk is almost full, and then delete the earliest recording files by 1 GB at a time. The NVR server will delete old files when available space is lower than **Reserve Space** you set in **Disk Drive List**.

When setting the deletion rule, please input a number in **Reserve Space** which should be smaller than your current **Free Space**.

Item	Description
Free Space (GB)	Currently available space of the chosen disk drive.
Total Space (GB)	The total volume of the chosen disk drive.
Reserve Space (GB)	This is the amount of space to be reserved for the whole system. Once the free space is used up as to reach the limit of reserved space, the system will delete the earliest recordings. The "**Reserve Space**" should always be **smaller** than "**Free Space**"

3. When finishing settings, click "**Apply**".

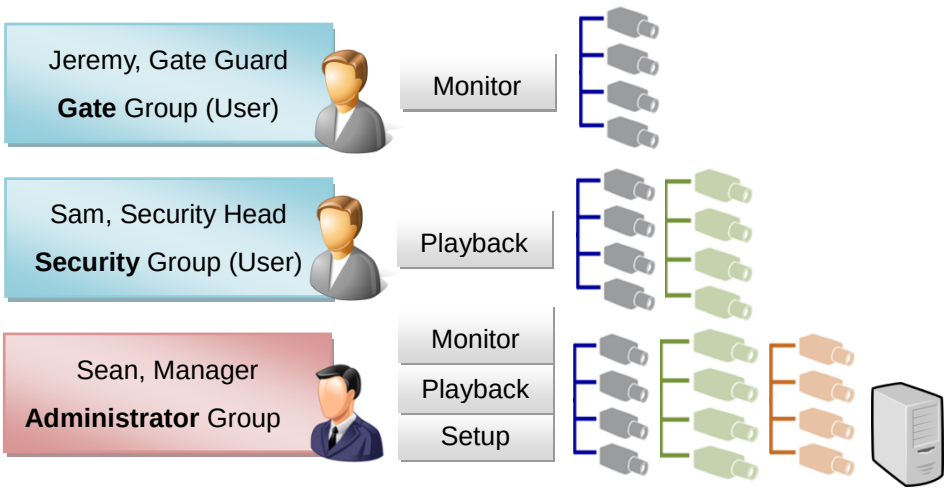
Manage User Groups/ Users

The User Groups/Users page allows you to (1) manage the access permissions of different user groups, (2) add or delete users from user groups, (3) and assign users to specific user group. This chapter will take you through these settings.

Access Permissions

In the NVR 3.0 system, the access permissions are managed by **User Groups**. **User Groups** defines what functions and devices are allowed for each user. Different **User Groups** will have different access rights in terms of permitted operations with each device like **Live View**, **Playback**, and NVR server management operations like **Device Setup**, **Schedule Setup**, **Event Setup** and **System Setup**. For example, an Administrator User is allowed for all the operations in the NVR server, while a standard User may only be permitted to do **Live View** and **Playback** with limited devices.

The chart below displays different employees as NVR Users and their access rights in this system:



Overview

Go to **Setup** page →**Users** tab. There are two sections to manage User Groups and Users individually.

User Groups: To setup user groups and its permissions for the device and functionalities.

Users: To manage user accounts and configure user information.

ACTi NVR 3.0 system has integrated **Microsoft Active Directory®** service to provide network administrators with a more convenient choice for user management. Active Directory is a directory service built in Microsoft Server products to manage user identities and privileges

within the domain network. As the NVR server runs on the same domain where the Active Directory server is, you can import a user account or a group from those concurrently existing one in Active Directory into the NVR server. In this way, the user identification is processed by Active Directory centrally; there is no need for the NVR administrator to maintain user accounts as long as they are under management of Active Directory service.

User Groups

You can specify access permissions to each device for a whole user group. This user grouping can save you significant amount of efforts if you have multiple users performing similar tasks and acting as similar roles.

There are already two default user groups as described below.

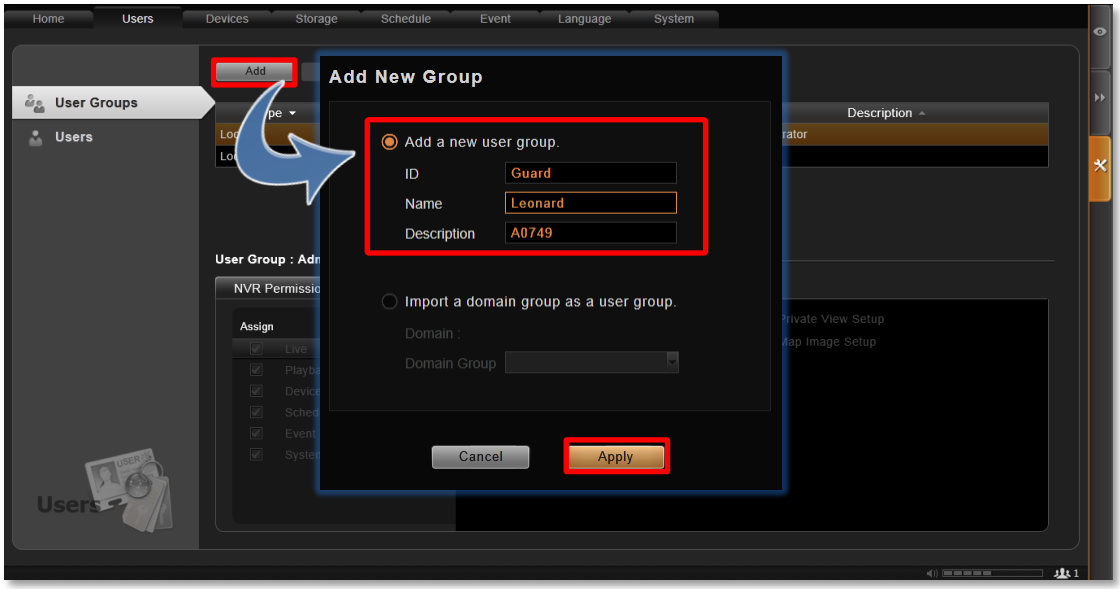
- **Administrator**: With full permissions in the NVR server.
- **User**: With the permissions to watch all camera live view and playback.

You can create a new user group on the NVR server or import an existing group from the active directory database within your domain.

1. Select User Groups, click "**Add**" and then choose the group type:

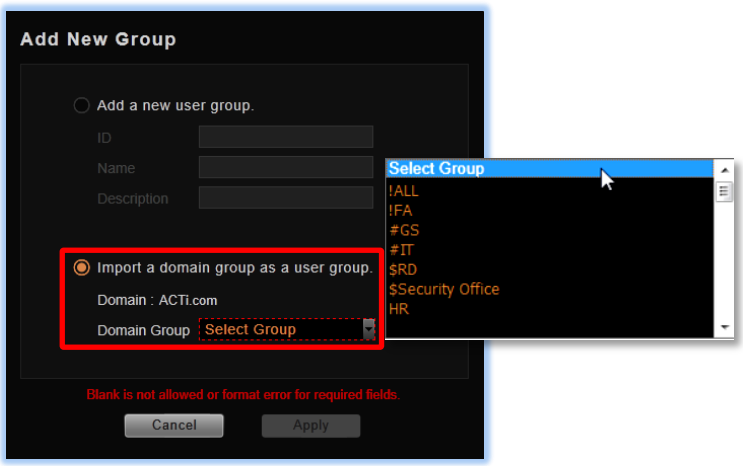
- Add a new user group:

  Insert **ID**, group **Name** and group **Description**, your input in the **Name** field will be the name of this user group. Click "**Apply**" to finish.

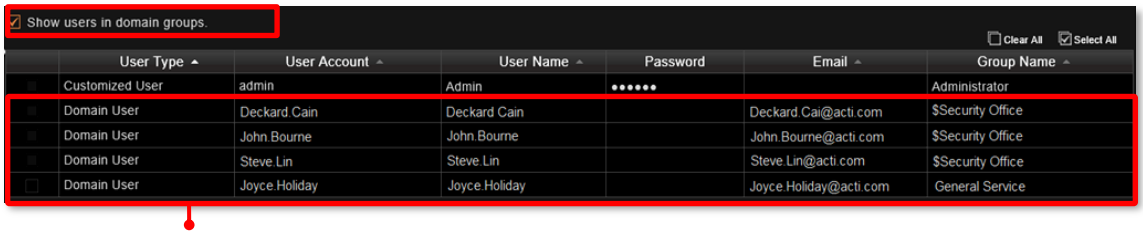


- Import a domain group as a user group:

  Choose an existing user group from your domain, and click "**Apply**" to finish.

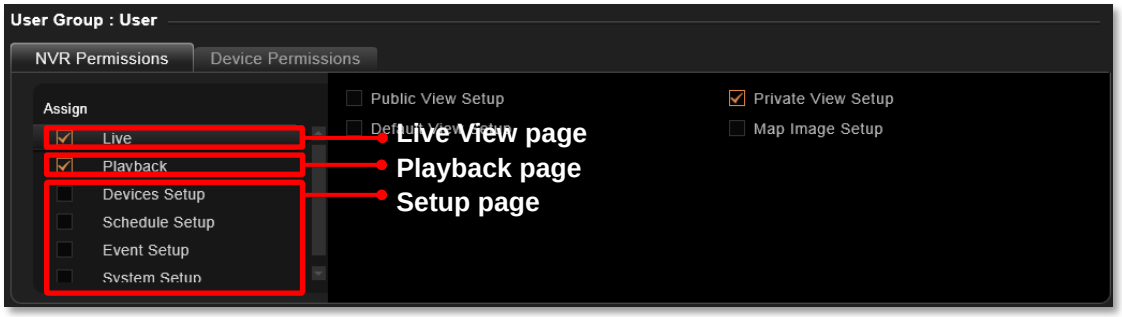


The domain users within that group will all be added to the NVR server at the same time. To view the whole users within this group, please select Users and enable the "**Show users in domain groups.**" The account information of these domain users, unlike those user accounts you add one by one to the NVR server, <u>are not editable on **Users** page</u>.



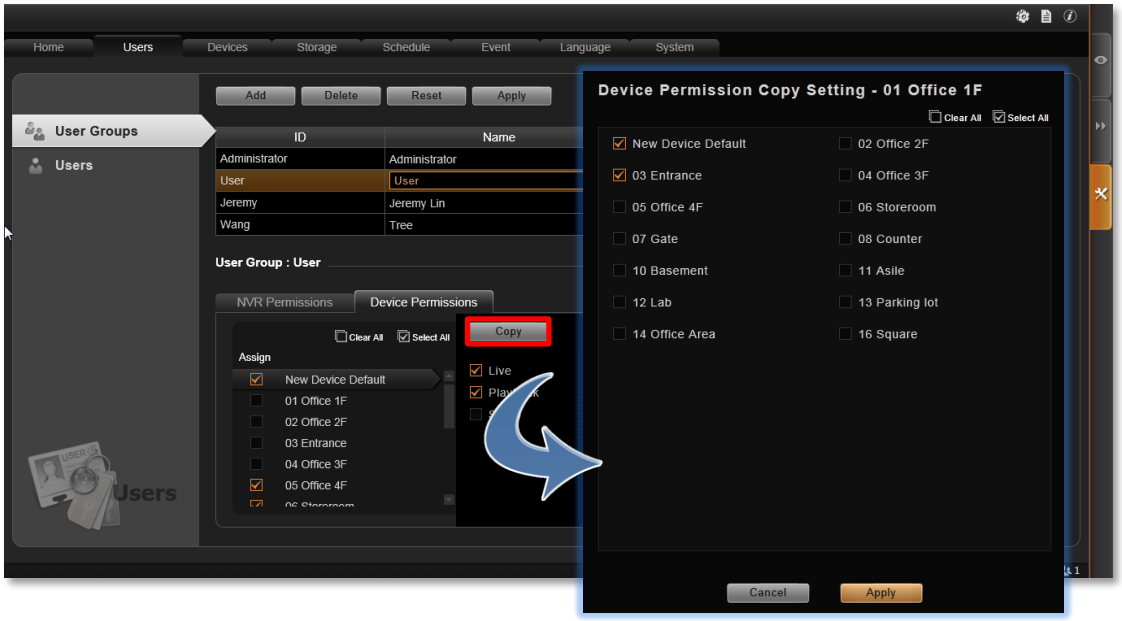
Domain users added as a whole group.

2. Assign **NVR Permissions** for the created group. This will define what functions this user group is allowed to access. <u>By default, a new user group will initially be allowed to access only **Live View** page and **Playback** page without any permission to any device setting</u>, so you will have to assign the device permissions later.



3. Assign **Device Permissions** for the created group. This will define which devices this user group is allowed to access. If this user group is allowed to access all newly-added devices, check "**New Device Default**" and edit the permissions, and these default settings will be applied to any device added in the future.

You may copy the **Device Permissions Settings** to other devices. Click "**Copy**" under **Device Permissions** tab to bring up the target device menu, check the target devices, and click "**Apply**".

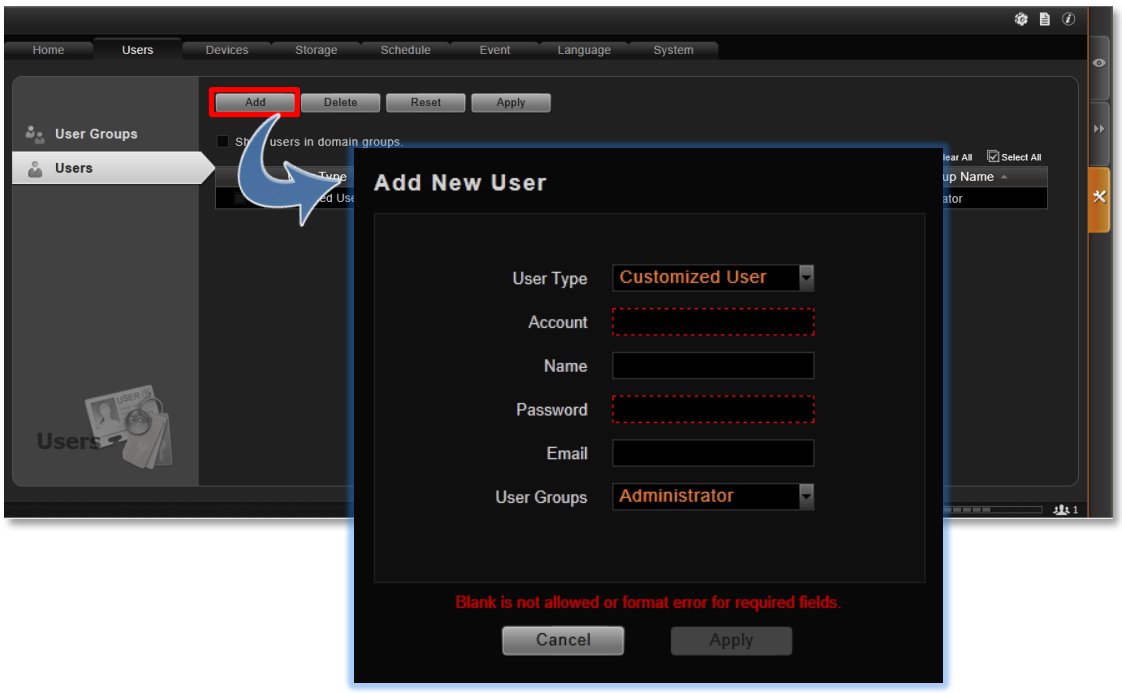


Click "**Apply**" on top to save the settings.

Add Users

To create a user account with on NVR server, please follow the below steps.

1. Select Users , and click **Add** button.
2. Choose **Customized User** or **Domain User** for the **User Type.**
   - **Customized User**: an account created and managed on the NVR server only. You will input an account name, its password and email address for this user.
   - **Domain User**: an account that already exists in Active Directory database within the domain. Since this is an existing account in your domain, you will have to select this account from **Account** dropdown list.
3. Insert user account, name, password, and the account e-mail (For **Customized User**).
4. Assign this newly registered user account to a specific user group.
5. After you click "**Apply**", this new user will be added to the list on top.



Note

The NVR server provides a procedure to help users who have forgotten the password retrieve the original information with the "e-mail address" authentication. It is strongly recommended that you input an email address to which this user has the access when you establish the user account. To update the e-mail address of an account, go to **Setup** page→ **Users** tab → edit "**Email**" of a selected user account; the users can also update the email addresses themselves after logging in to the NVR server on **Live View** page → ⚙ → **Update Profile.**

Note

Account /Password Rules

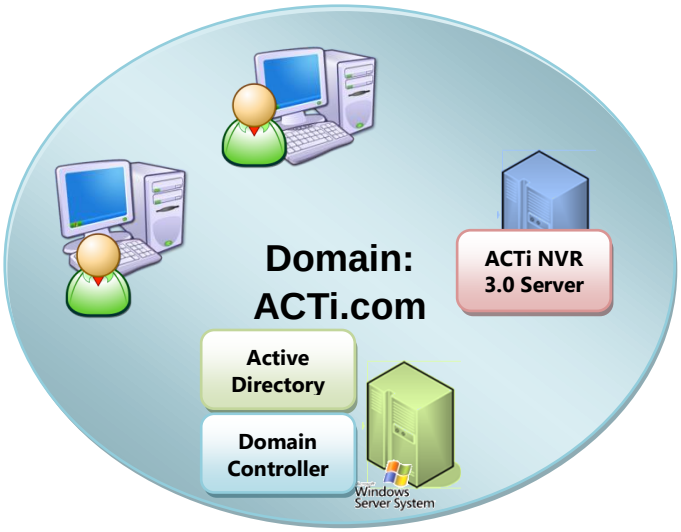
1. **Account** and **Password** fields allow alphabets, numbers, and symbols except the following: **/ \ [ ] : ; | = , + * ? < > "**
2. In **Account** field, for alphabets, the input will be recognized as lowercase letters. Space is only allowed between characters; the space in the beginning or at the end will be deleted as it is saved.
3. The **Password** field is case-sensitive, and the space is allowed.

Note

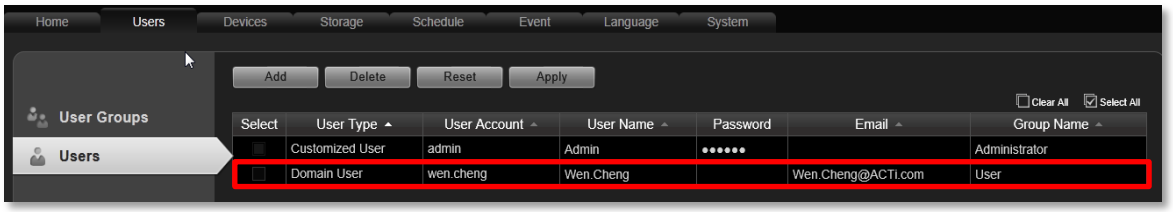
Admin is the default user account and belongs to "**Administrator**" user group. Hence, the user **Admin** and the group **Administrator** cannot be deleted; it possesses full permissions to all devices and NVR settings.

Domain Users Management

As the NVR server is logged in to a domain Active Directory, it can import a user account from Active Directory.



This type of user account is "**Domain User**". Upon being added to the NVR server, the user properties stored on Active Directory database including (1) account name and (2) email address will be imported to the NVR server.



Whenever a domain user client tries to log in to the NVR server, the NVR server will first verify if this account exists in the NVR server database, and then have Active Directory verify the user account and password.

As Active Directory owns the privilege to create, edit and delete domain users, **the Domain User's account and password are not editable through the NVR user interface but via Active Directory Administrative Tool**.

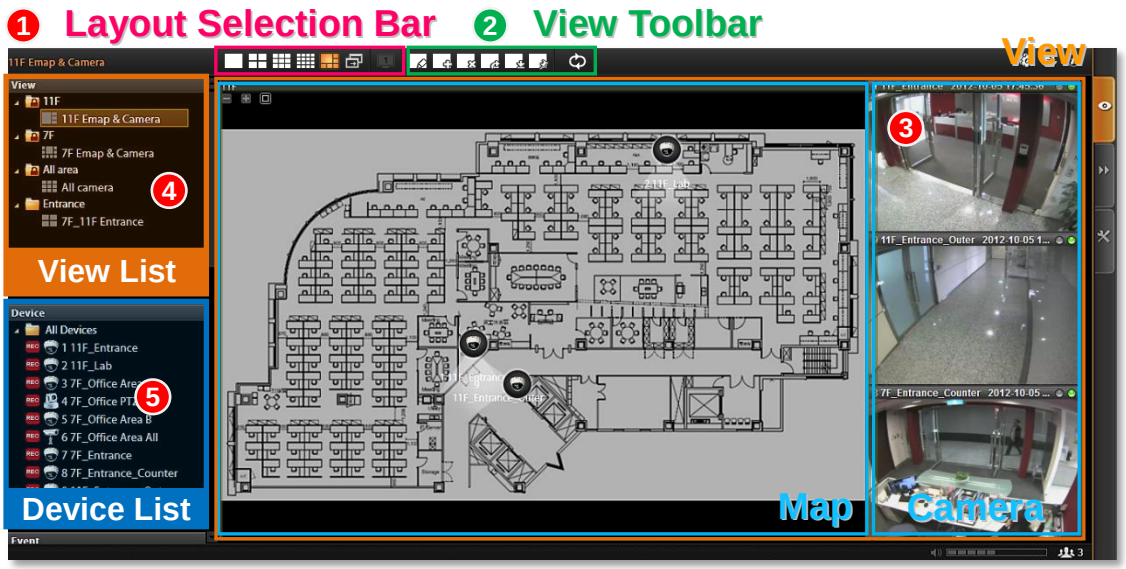
Customize Views

After all devices are configured, you may start customizing the views for different users and purposes. This chapter will teach you how to add video sources, arrange the channels and manage live view layouts.

In the NVR 3.0 system, a **View** refers to the layout where the live images of **Cameras** or **Maps** are placed in the proper positions to suit the monitoring purpose. This is very similar to a camera group, which often consists of cameras in the same physical location. For example, a View named **11F Emap & Camera** may contain the 11F floor plan and the cameras actually installed on 11F.

On NVR Live View, a saved View remembers (1) layout style, (2) which channel to display which camera, and (3) the fisheye view mode (for fisheye cameras only).

Live View interface overview



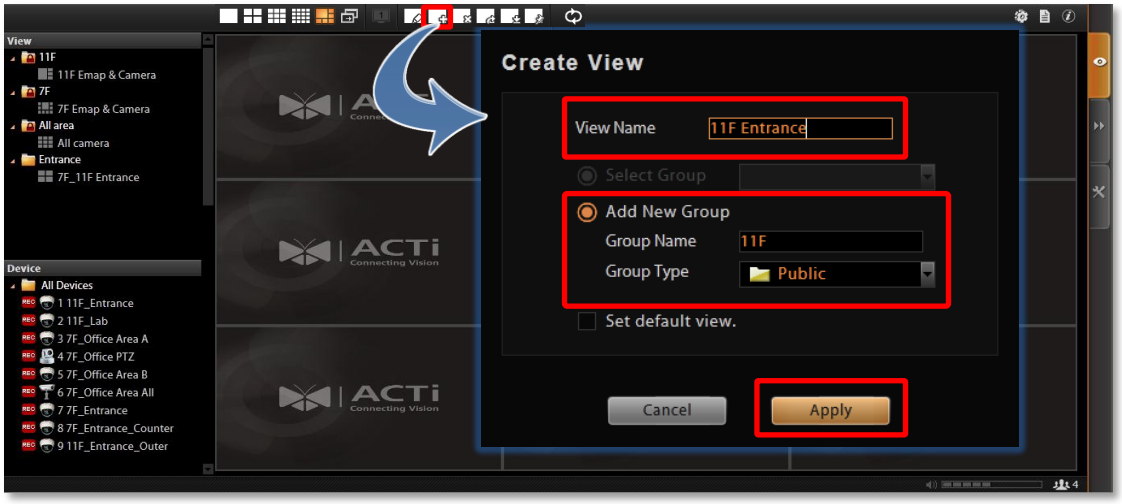
1. **Layout Selection Bar**: There are 24 options for layout styles.
2. **View Toolbar**: Choose the function keys for editing the layout.
3. **Channels**: Each channel window may display a camera view or a map. In edit mode, you can adjust the channel size at will.

View List: All the saved Views are shown here. On Live View, you can go View Manager to group and manage these views (refer to

4. Manage the Views on page 119).
5. **Device List**: In edit mode, drag the camera from here to your desired channel.

Step 1: Create a New View

On **View Toolbar**, click the **Create View** button , input the **View Name**, add a **New Group** for this View and decide whether this group is to be **Public** or **Private**, and then click "**Apply**". The views under **Private View Group** are only available to the user who creates them, while the views under **Public View Group** are open to every user.



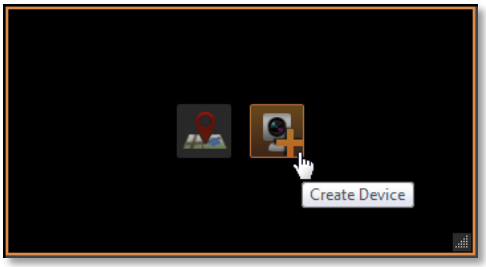
Step 2: Enter Edit Mode

On **View Toolbar**, click the **Edit View** button , and this view will turn into edit mode. In edit mode, you may add a video source to a channel, and adjust the channel size.

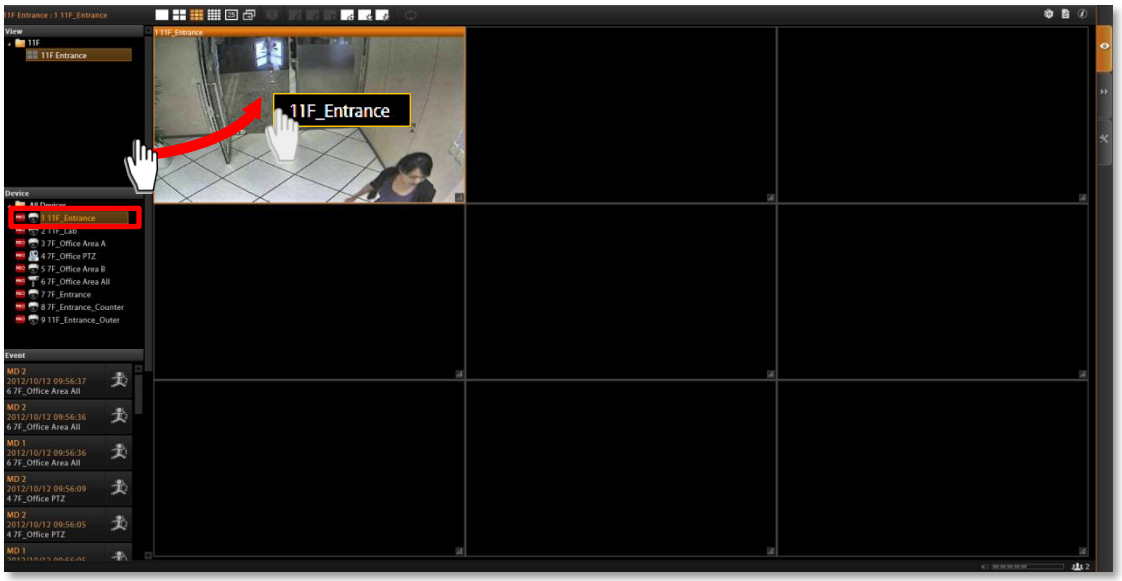
Step 3: Select a Layout

On **Layout Selection Bar**, click the **Expand** button for all provided layout styles. Select a layout that is perfect for your required channel number and ideal arrangement.

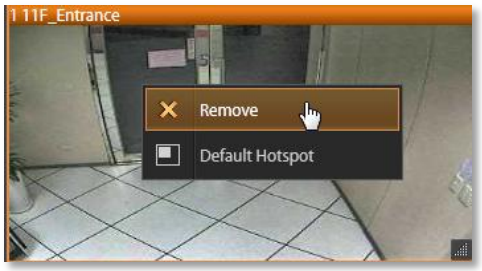
Step 4: Add Video Source



In edit mode, move the mouse over the channel and click . You may also directly pull a camera from the **Device** panel to your desired channel.

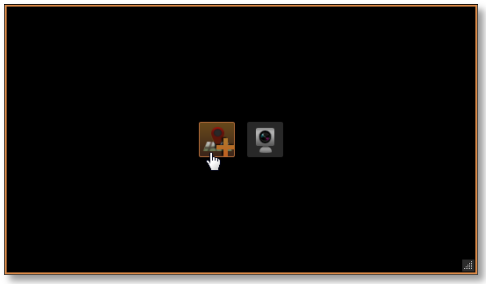


Remove the camera view: right-click on the channel and select "**Remove**".

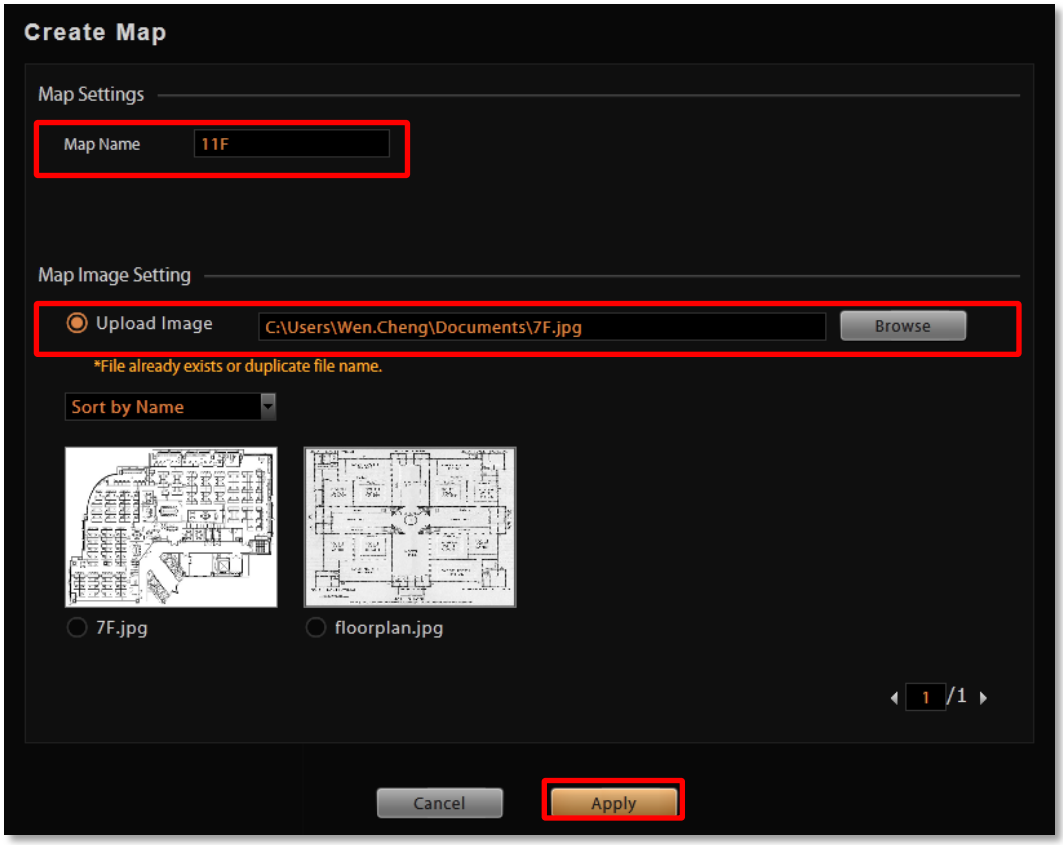


Step 5: Add a Map

By adding a map, you put a picture on the channel, where you may place camera icons to make it an "**e-Map**.



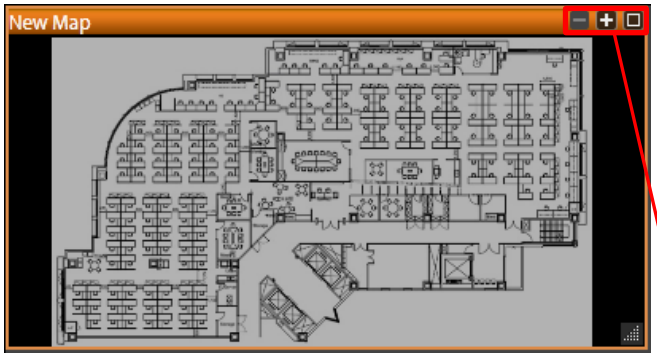
In edit mode, move the mouse over the channel and click to upload a map. Please input the **Map Name**, select the image location (file format must be JPG) and click "**Apply**".



Map brightness:

To change the map brightness, right-click on the map, select "**Map Mask**" and choose the brightness percentage level.

Map size:



By default, the map will be displayed in its original size. Use the buttons on upper left to adjust the map size.

- Fit image to channel height
- Zoom out
- Original image size
- Zoom in

Edit map title:

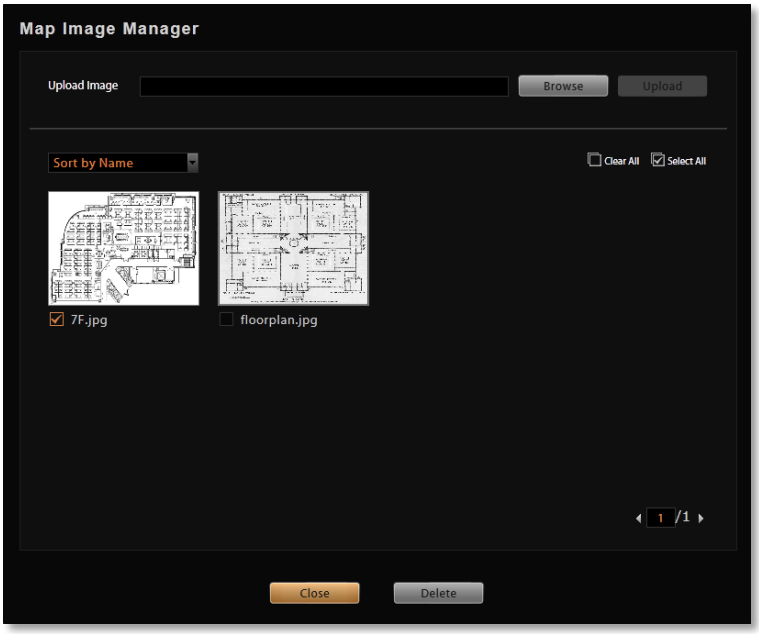
The map title will be shown on channel title bar. In edit mode, right-click on a map channel and select "**Edit Map Information**"

Remove the whole map:

Right-click on the map and select "**Remove**".

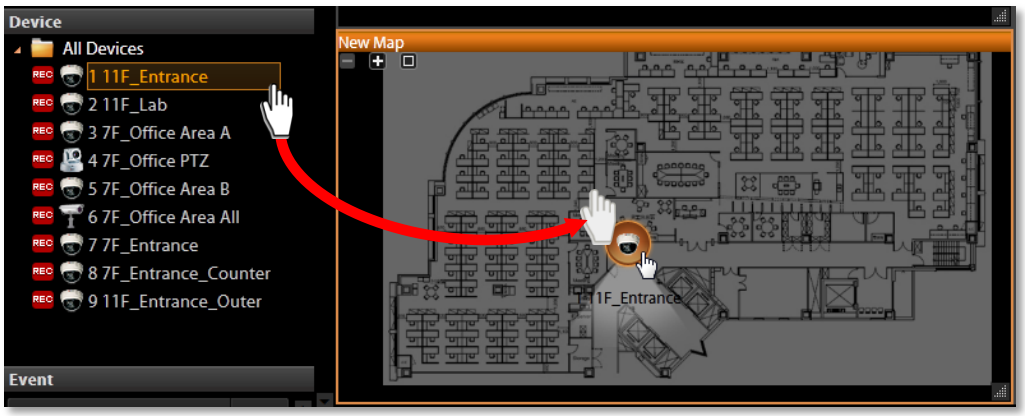
Manage maps:

All the uploaded images are managed under **Map Image Manager**. On **Live View** screen, you may go to → **Map Image Manager** to view, upload or delete the maps.

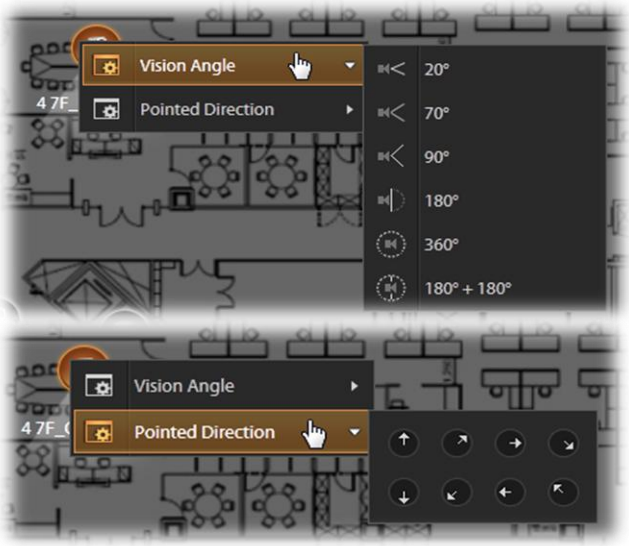


Step 6: Add Devices to the Map

Pull a device from **Device List** to the map.



- To remove this device from map, Click .
- To move this device, left-click on the device icon and drag.
- To turn the pointed direction, mouse over the viewing angle area, and left-click on the clockwise arrow to turn the direction.

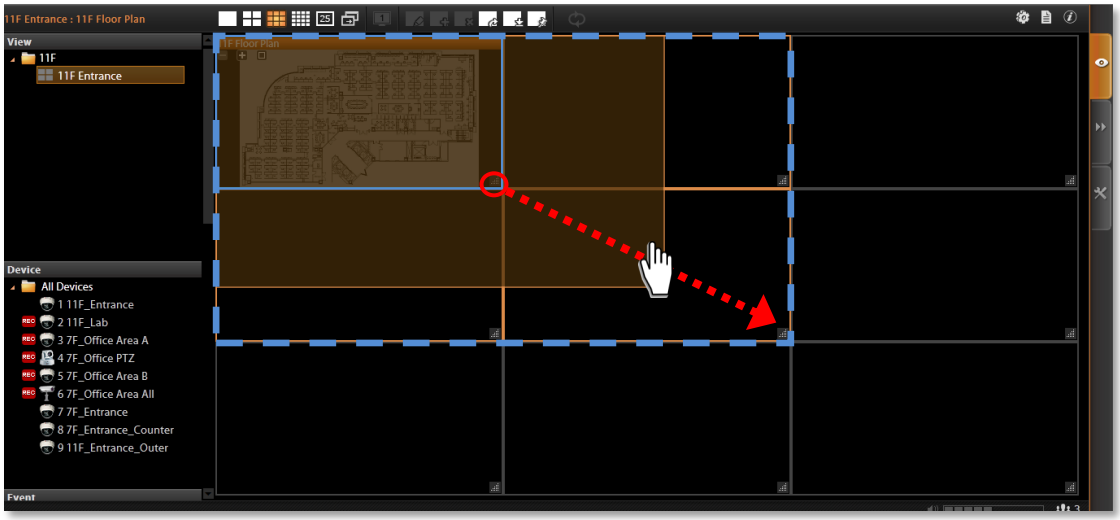


- To adjust precise pointed direction, right-click on the device icon, and select "**Pointed Direction**".
- To adjust device's viewing angle, right-click on the device icon, and select "**Vision Angle**".

Step 7: Adjust the Channel Size & Layout

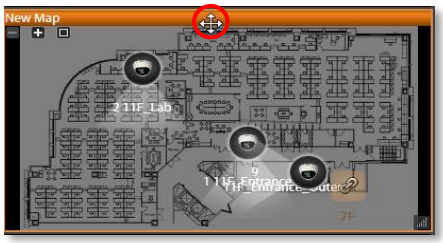
Adjust the channel size:

Click on lower right corner of the channel window, drag and then release.



Switch channel windows:

Click on a channel title until the cross arrow appears, and hold it to drag this device or map to your desired channel.



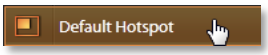
Step 8: Save the View

Click on **View Toolbar** to save it.

Step 9: Set Default View

To set a View as default, select it in the **View List** panel and then click **on View Toolbar**. By the next time you log in, you will directly enter this View.

Step 10: Set Default Hotspot Channel (Optional)

By system default, the global hotspot channel will always be the top left one. You can set any other channel on your live view screen to be the default hotspot channel. Right-click on the channel and select **"Default Hotspot"** 

, and then click on **View Toolbar** to save it.

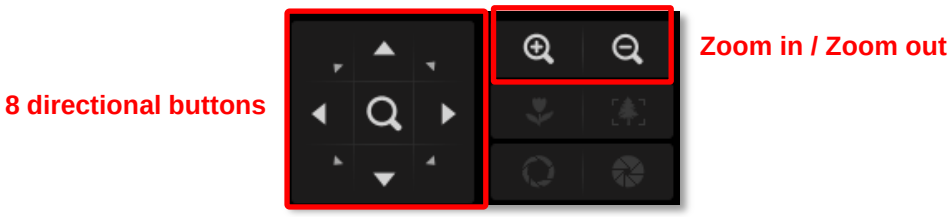
Step 11: Set Fisheye Camera Mode

Define a view for a fisheye camera channel by selecting its mode and using ePTZ control. Please note that the maximum number of fisheye channels on the same View is **16**.

1. On this channel, right-click to bring up channel menu, click "**Fisheye Mode**" and select one mode.

2. After the fisheye mode is selected, click the entire channel or a region of interest.
   - Use **PTZ Panel** controls to operate PTZ movements:

ePTZ Controls on PTZ Panel



   - Click the mouse anywhere on the view to pan/tilt, and scroll the mouse wheel to zoom in/out.

   - To reset the ePTZ navigation area back to default viewing angle, right-click to bring up channel menu, and then click "**Reset**".

3. click on **View Toolbar** to save the configuration.

Note

Once a channel is changed to any of the following fisheye modes, **Dewarping**, **Panorama**, **Double Panorama**, **Panorama/Focus** or **Quad**, the resolution of this live stream will become 1920x1080, while the NVR server still records the live stream at the resolution you set on **Setup** page.

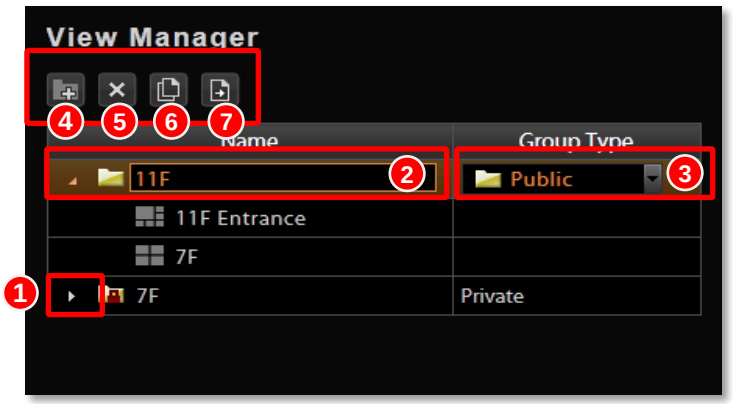
Manage the Views

Each View belongs to a specific **View Group**. With the group management, the NVR 3.0 system makes it easy to deal with Views you create for multiple users.

After you create and save the Views on **Live View** screen, click → **View Manager**.

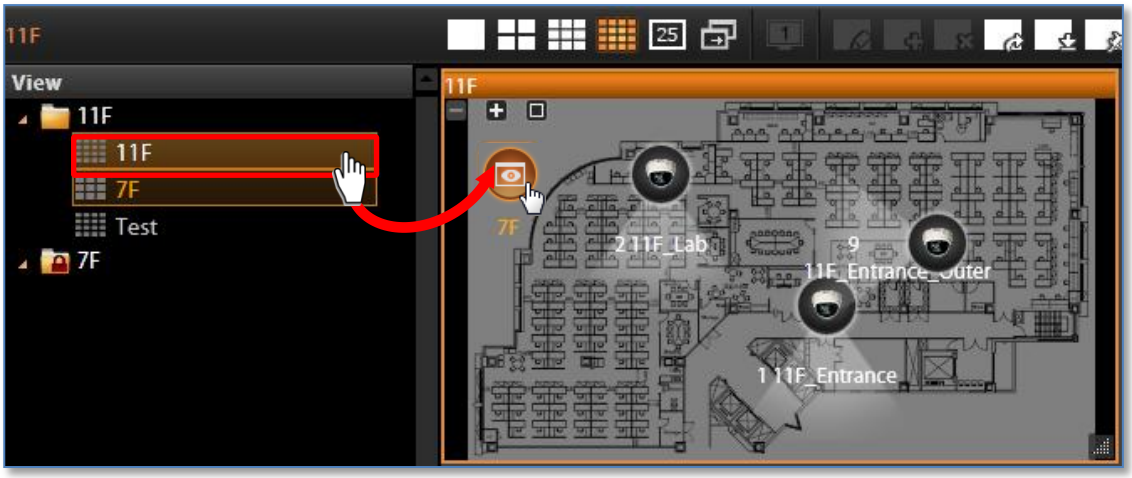
1. Click on the right arrow icon in front of a group folder to reveal its **Views**.
2. By selecting a **View**, you may directly modify its name in **Name** field.
3. You may change a group's **Group Type**. Upon the change, for example, by changing a group from "**Private**" to "**Public**", all the views belonging to it will be open to every user.
4. Click this icon to add a new group.

5. Click this icon to delete a selected group.
6. Click this icon to copy a selected group to another group.
7. Click this icon to move a selected group to another group.



Set View Link

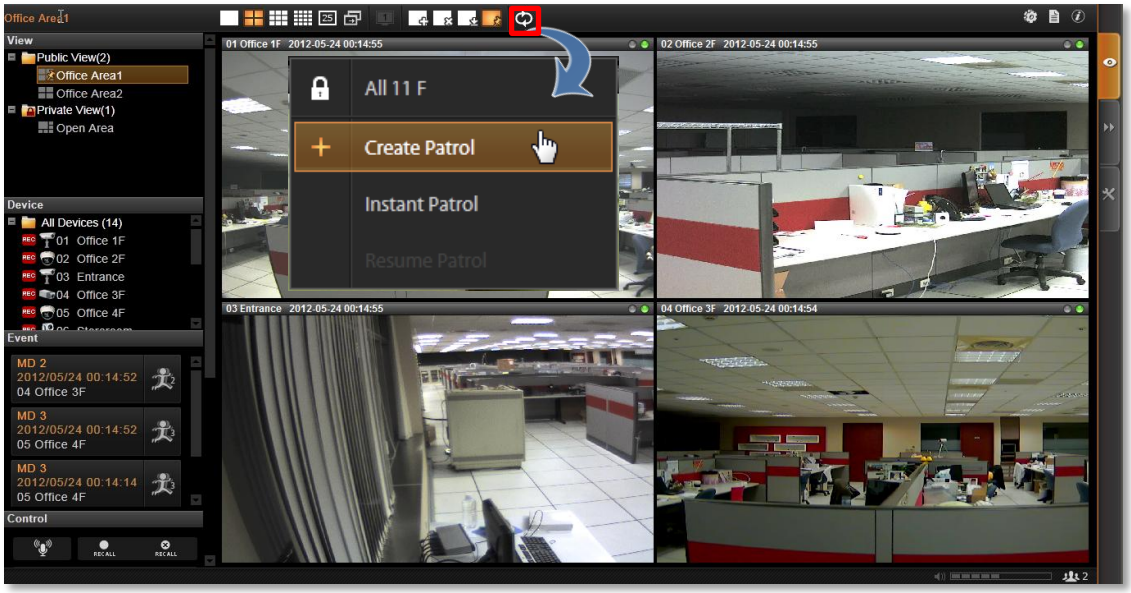
By creating a link button on a map view, you can directly be linked to another specific view by clicking the button. On the picture below shows how to create a link button to 7F View on 11F View.



1. Select a View, on which you will place a link button to another view.
2. Click on **View Toolbar** to enter edit mode.
3. From **View List**, drag the target View to current View, and a link button will appear.
4. Click on **View Toolbar** to save it.

Set View Patrol

You may have the saved Views patrol in turns. In this way, the views in different area in your site may cycle through themselves automatically.



On **View Toolbar**, click and select **Create Patrol**.

1. Input **the Patrol Name**
2. Select the **Patrol Type** to be either available for all users or to the creator's account only.
3. Define the **Global Dwell Time** between the views. If you want to set different dwell time length for individual Views, do not check this option, and configure them separately in the table below.
4. Choose the **Views** to display in patrol. If you select the **All Device** group, you will also need to select "**All Device Layout Style**" for it.
5. Click "**Apply**" to save the settings.

6. The saved patrols will be shown on the patrol list after you click on **View Toolbar**. You may delete and edit a saved patrol or select it to start patrolling.

Tips to Enhance Live View Performance

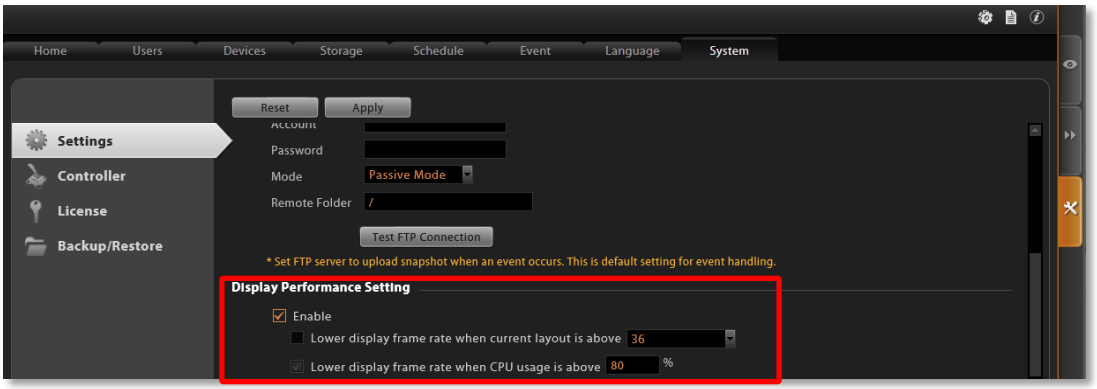
Live view for multiple channels requires sufficient computing power to run the performance. In certain extreme cases, like when viewing several megapixel H.264 video streams at the same time, the client computer will be overloaded and hence affect browser's performance. This is a common limitation imposed upon all Windows based video management programs and web browser.

To enhance live view performance, below are several tips you may try.

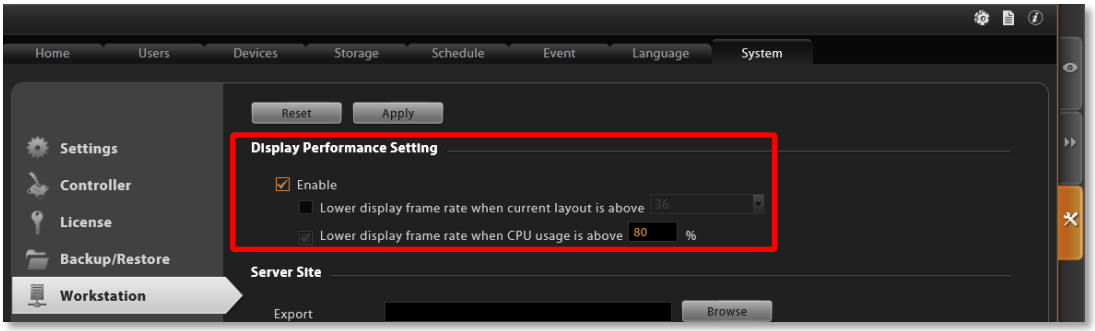
1. Use dual stream mode for those devices supporting this function. Enable the dual stream mode and use the stream of lower resolution/frame rate/bit rate for live view, and megapixel resolution stream for recording.

2. Use another browser client to share these high-resolution channels. Given that there are 32 megapixel channels to be monitored, and you may have Layout 1 to display channel 1 to 16, Layout 2 to display channel 17 to 32. You can open one browser client to show Layout 1 and the second browser on an extended monitor to show Layout 2.

3. Have NVR automatically decode only I frame for live view stream when system loading is high. Go to **Setup** page → **System** tab→ **Settings** → **Display Performance Settings** for the settings. You may choose to enable the **Decode I frame** function under either or both of the conditions that the current layout is displaying channels above certain number, or the CPU usage is above certain percentage. When either of these two situations happens, the frame rate of all live streams will be declined. This setting will be applied to the live display of all connected clients except for the client on INR.



4. A **Workstation** client computer can have its own specific display configuration without being affected by the NVR universal setting. Log in as **NVR3 Workstation** client, go to **Setup** page → **System** tab→ **Workstation** and configure the **Display Performance Setting**.



Note

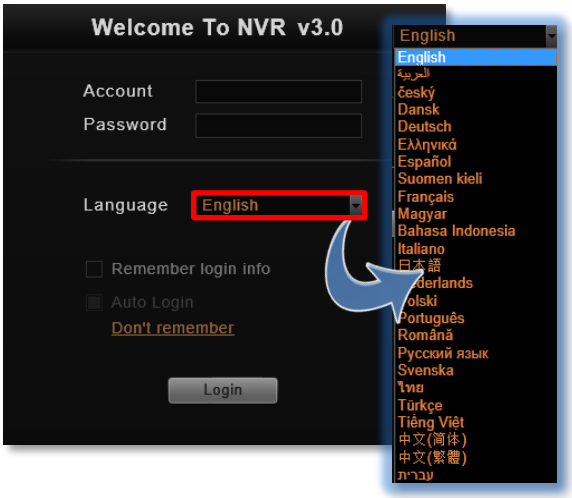
By default, on INR-410/420, when the number of layout on Live View exceeds **four** channels, all the channels will automatically turn into Decode-I mode. For smooth video quality, please remember to go to **Setup** page → **System** tab→ **Workstation** and configure the **Display Performance Setting**.

Customize System Language

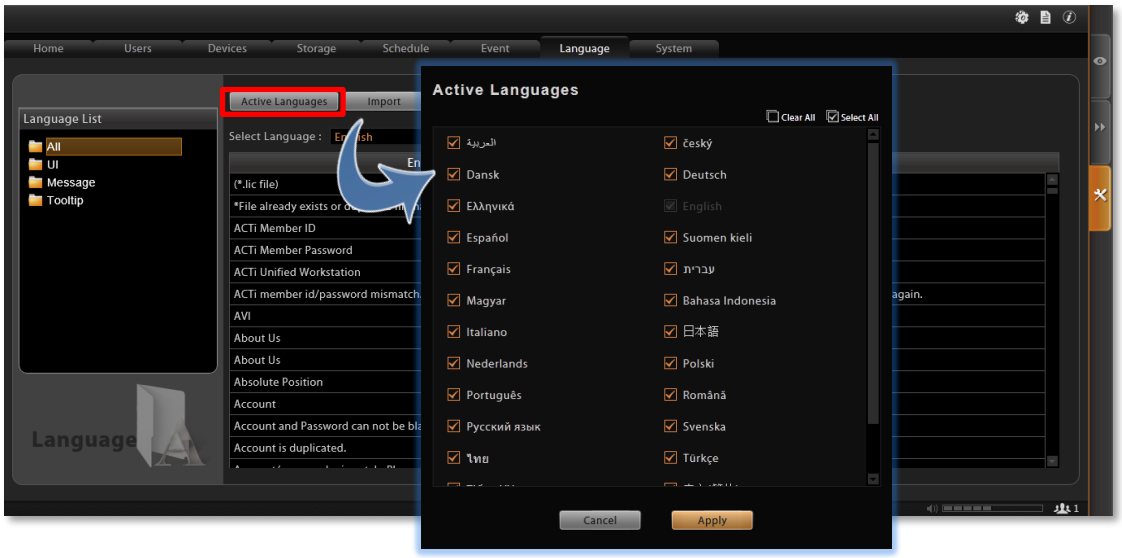
The NVR server supports multiple languages for user interface display. There are already **10** translated language files in the server system. Each language is open to customization based on your own needs. This section will describe how to choose or customize language strings for your site.

System Languages List

You may decide which languages to be selectable on Login screen. The chosen languages will appear on the "**Language**" dropdown list.



Go to **Setup** page →**Language** tab, and click "**Active Languages**". On popup window, check the languages you need, and click "**Apply**". By default, all languages are selected, as the default system language, **English** and **Traditional Chinese** are not removable from this list.

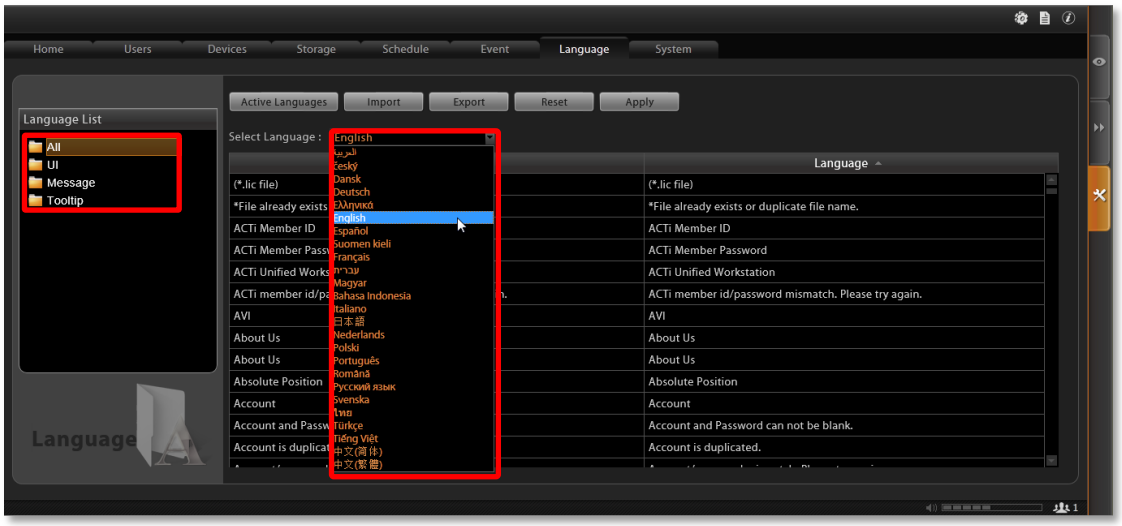


Edit User Interface Wordings

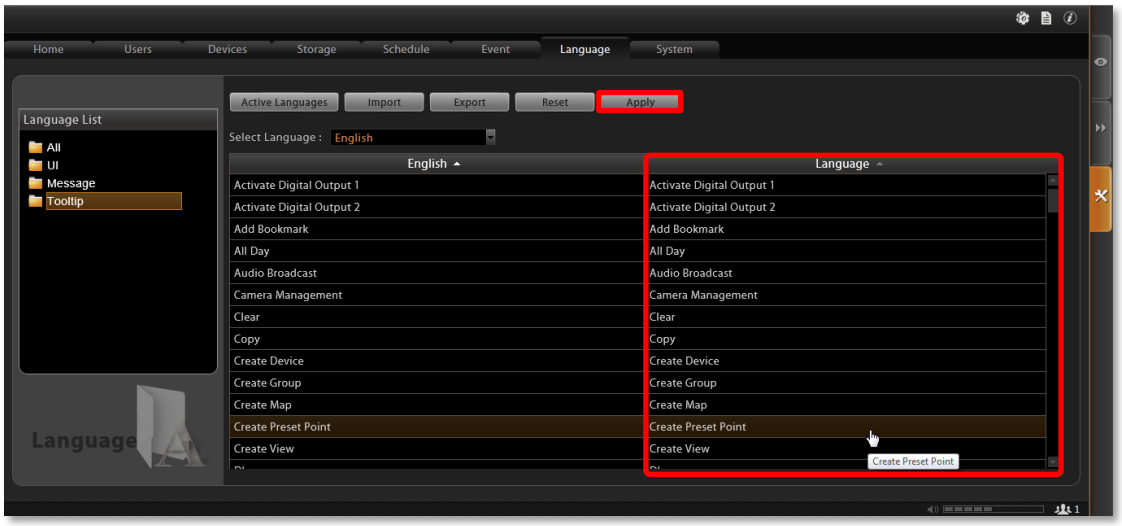
Each language file contains four editable string tables. Each table displays the default wordings in English and the translation in target language.

To view each table:

1. Select the language from "**Select Language**" dropdown list, and then select a table from the "**Language List**" on the left column.



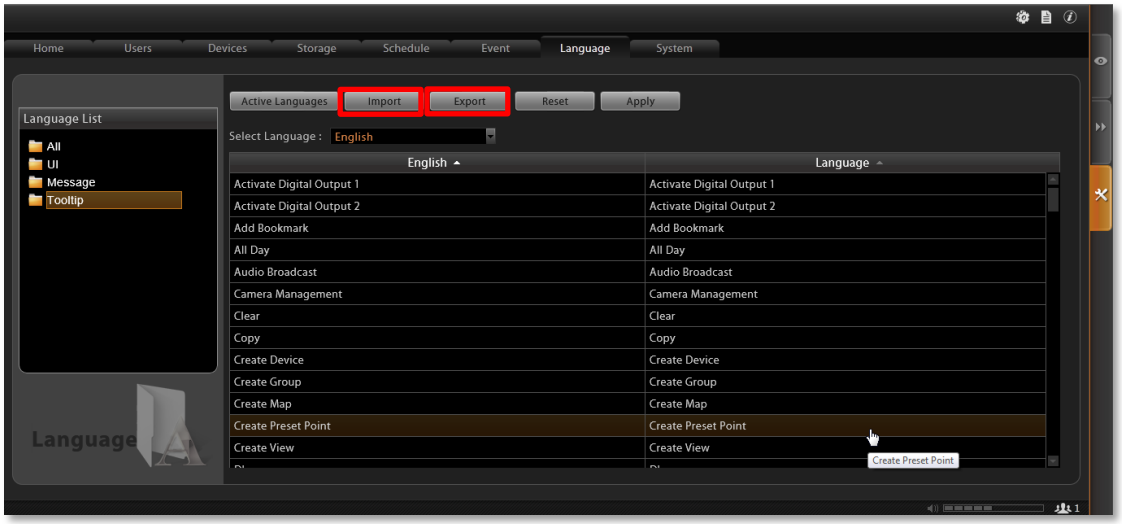
2. Your target language will be displayed on the right column, while the default system language "**English**" appears on the left for reference. Click in any field on right column to customize your desired wordings, and click "**Apply**" to overwrite the current wordings.



The new string will be applied by next time you log in. If you log in as an **NVR3 Workstation client**, please press button on **Login** page to synchronize with the latest modified language file, and then log in to the system.

Export / Import Language String File

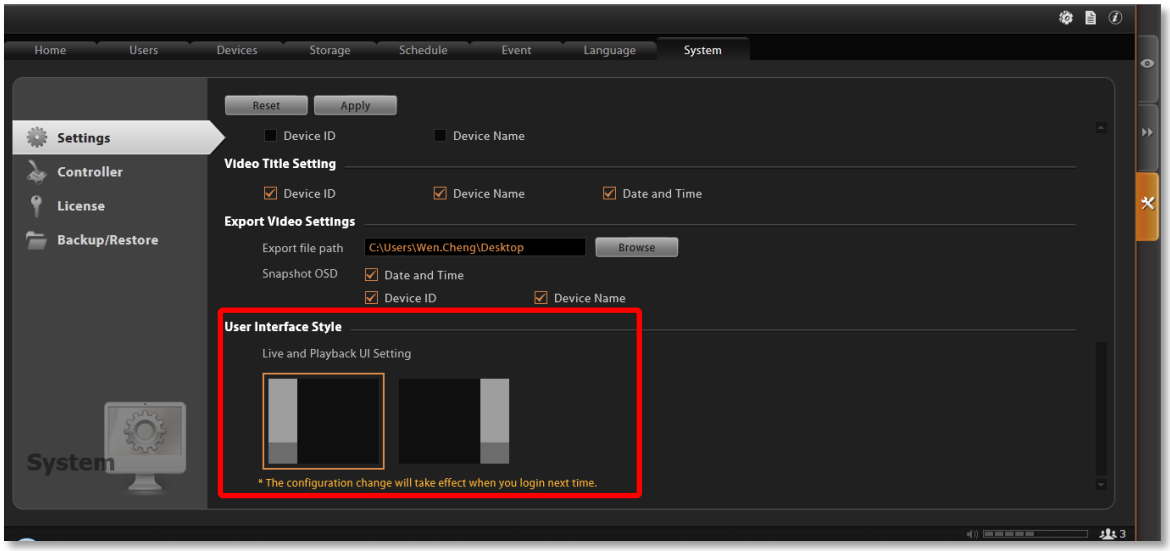
You may also click "**Export**" to export the language file as .xml format to edit in **Notepad**, or "**Import**" to import a language file to use in the system.



In general, it is suggested that you always save a modified language table with a different file name in a location other than default system language folder *C:\Program Files\ACTi Corporation\NVR3\Language*, and then import it to use. In this way, you can avoid overwriting the original language file.

Display Configurations

You can change the user interface style by arranging the main screen and **Panel/Device List** on the right or left. Go to **Setup** page→**System** tab→**Settings**. In **User Interface Style** section, select the setting style and click "**Apply**". The change will be applied upon your next login.

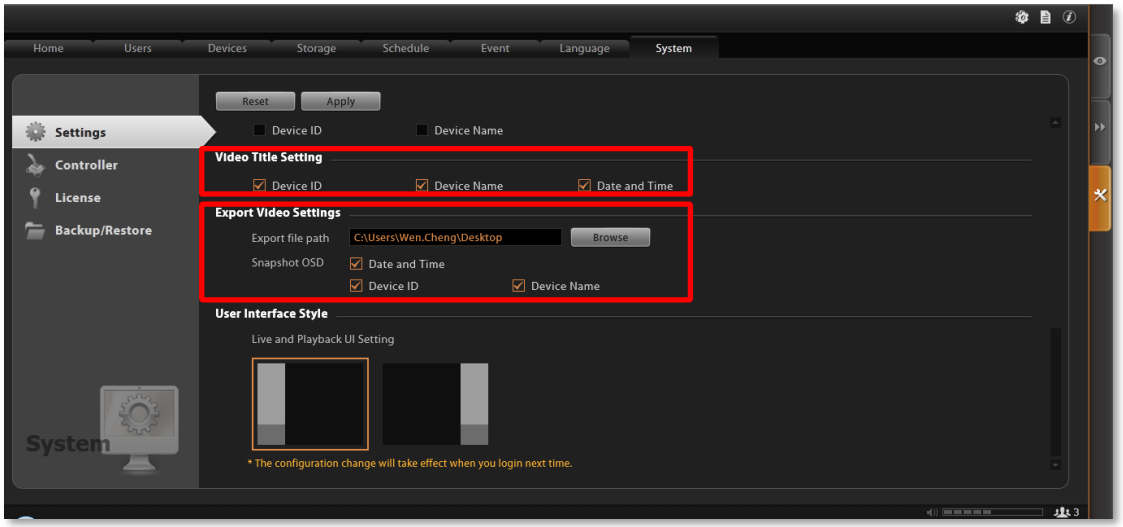


Video & Snapshot Export Configurations

The snapshots taken by users on **Live View** and all exported video files are saved to a default file location, and you may configure the destination on the NVR server. Go to **Setup** page→**System** tab→**Settings**. In **Export Video Settings** section, click "**Browse**" to choose the Export file path.

You may also want to define what information to be printed on each snapshot by checking the items **Date and time, Device ID** and **Device Name**.

These configurations will take place after you click "**Apply**".



Joystick

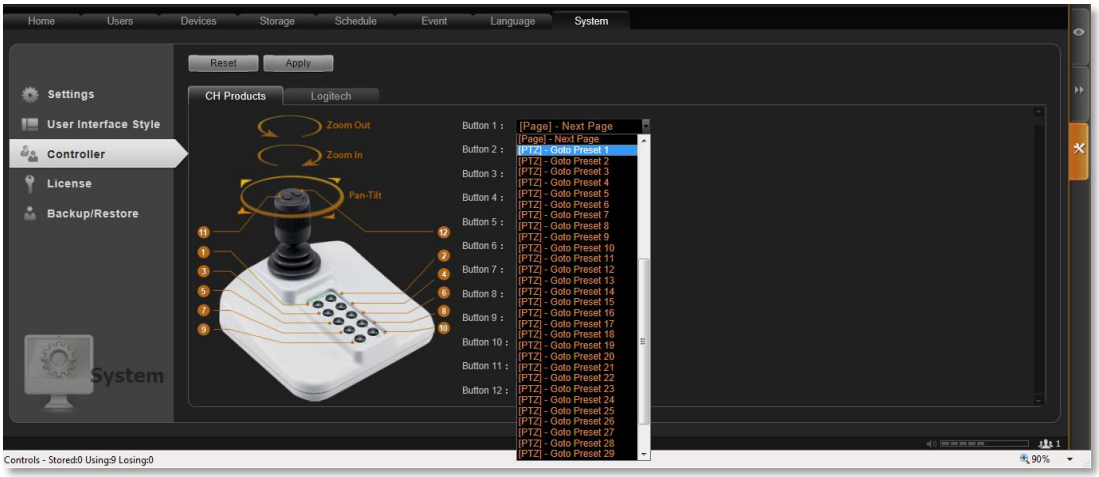
On the NVR server, other than user interface PTZ panel and mouse operation, you may also control the PTZ movements by physical controllers. The NVR server supports two types of controllers, both of which feature in a joystick with twelve buttons for users to assign specific actions.

Model: **IP Desktop**
Manufacturer: CH Products

Model**: Extreme™ 3D Pro**
Manufacturer: Logitech

Joystick Configurations

1. Log out from the NVR server.
2. Connect the controller device to the NVR server. To make sure the device is installed properly, open **Windows Start menu** and enter **Devices and Printers** to check the status.
3. Log in to NVR server, go to **Setup** page →**System** tab, enter "**Controller**" section and select your product.
4. You may assign specific commands from dropdown list to buttons 1~12 of the controller. When the setting is done, click "**Apply**". The modification you did on one controller model will be applied to the other joystick model as well.



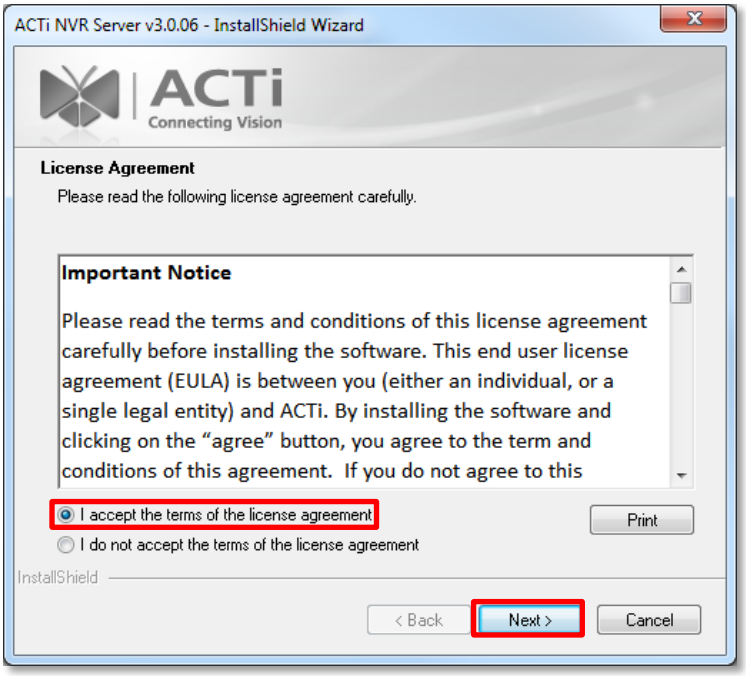
5. To validate its function, go to **Live View** page and focus on a PTZ device channel to operate the supported PTZ operations.

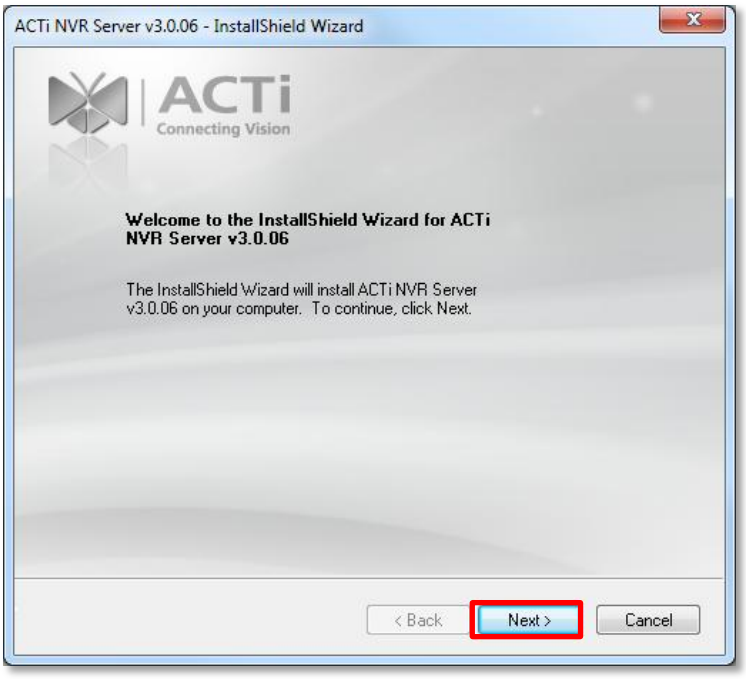
NVR System Upgrade

When a newer version of the NVR system software for INR-410/420 is released on ACTi website, you can download and install it directly to upgrade your NVR system. To download the latest version, please go to http://www.acti.com/product/detail/Standalone_NVR/INR-410 or http://www.acti.com/product/detail/Standalone_NVR/INR-420 to see if there is any newly released version of the NVR system. The upgrade process is as easy as 1-2-3 by following the installation wizard's instructions. The server would start its service right after installation completes, without the need to restart the server computer.

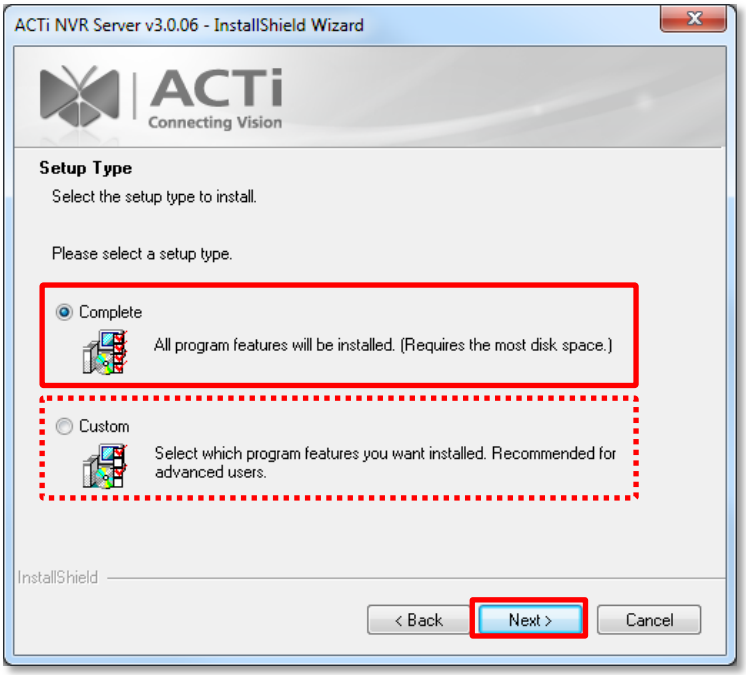
Install the Software

1. Execute the install shield application .
2. Follow the onscreen instructions of **Install Shield Wizard**, and accept the license agreement and proceed.

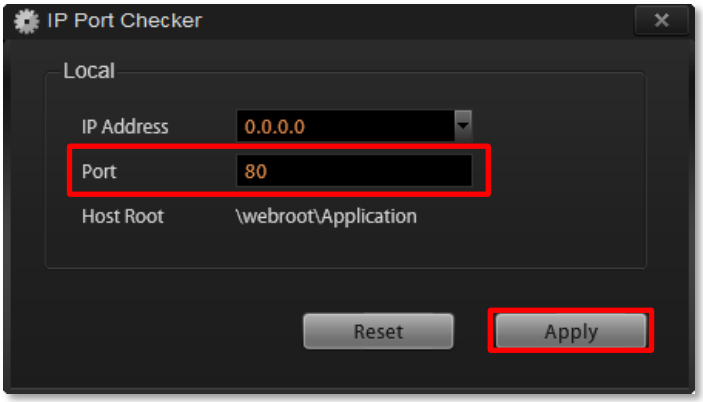

ACTi NVR Server v3.0.06 - InstallShield Wizard
ACTi
Connecting Vision
License Agreement
Please read the following license agreement carefully.
Important Notice
Please read the terms and conditions of this license agreement carefully before installing the software. This end user license agreement (EULA) is between you (either an individual, or a single legal entity) and ACTi. By installing the software and clicking on the "agree" button, you agree to the term and conditions of this agreement. If you do not agree to this
I accept the terms of the license agreement
I do not accept the terms of the license agreement
Print
InstallShield
< Back
Next >
Cancel


ACTi NVR Server v3.0.06 - InstallShield Wizard
ACTi
Connecting Vision
Welcome to the InstallShield Wizard for ACTi NVR Server v3.0.06
The InstallShield Wizard will install ACTi NVR Server v3.0.06 on your computer. To continue, click Next.
< Back
Next >
Cancel

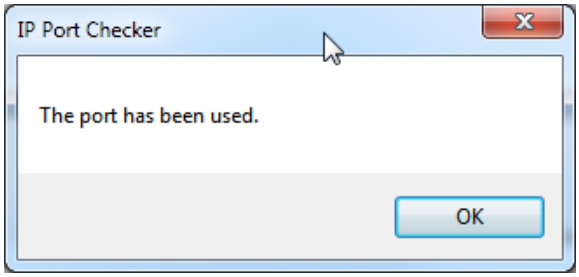
When selecting **Setup Type**, the default "**Complete**" will have the program installed on default **C drive**, you may select "**Custom**" to choose another program location.


ACTi NVR Server v3.0.06 - InstallShield Wizard
ACTi
Connecting Vision
Setup Type
Select the setup type to install.
Please select a setup type.
Complete
All program features will be installed. (Requires the most disk space.)
Custom
Select which program features you want installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

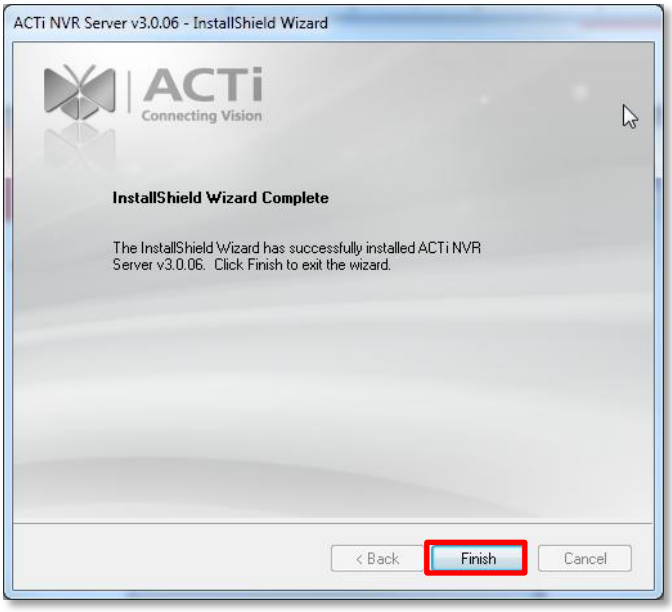
3. The **IP Port Checker** will pop up to confirm the NVR port number with you. The installation program will use **80** as default. You may enter another available port number in "**Listen Port**" field and click "**Apply**".



You may just click "**Apply**" if you are not sure whether this port has been taken or not. If the port is being used by another service, you will be asked to input another available port number.



4. As the server port is confirmed, the installation process is done, click "**Finish**".


ACTi NVR Server v3.0.06 - InstallShield Wizard
ACTi
Connecting Vision
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed ACTi NVR Server v3.0.06. Click Finish to exit the wizard.
< Back
Finish
Cancel

5. After the installation completes, connect to http://localhost:port_number with Internet Explorer browser, you will see NVR Login page.

Note

If IIS Web Server has been installed on the computer and you are asked to restart the computer during installation process, please

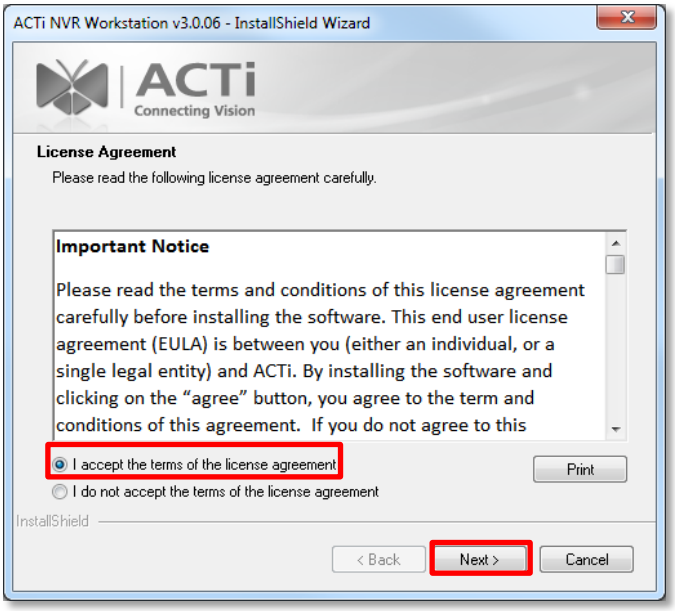
1. Choose Yes, I want to restart my computer now. to restart right away.
2. After the computer reboots, this install shield will continue to complete the installation.

Workstation Installation and Upgrade

NVR3 Workstation program is wrapped together with the NVR system software in a zip file. When you upgrade the NVR system to a new version, please also upgrade NVR3 Workstation to the same version as the NVR system.

Install or Upgrade the Software

1. Execute the install shield application .
2. Follow the onscreen instructions of **Install Shield Wizard**, accept the license agreement and proceed.


ACTi NVR Workstation v3.0.06 - InstallShield Wizard
ACTi
Connecting Vision
License Agreement
Please read the following license agreement carefully.
Important Notice
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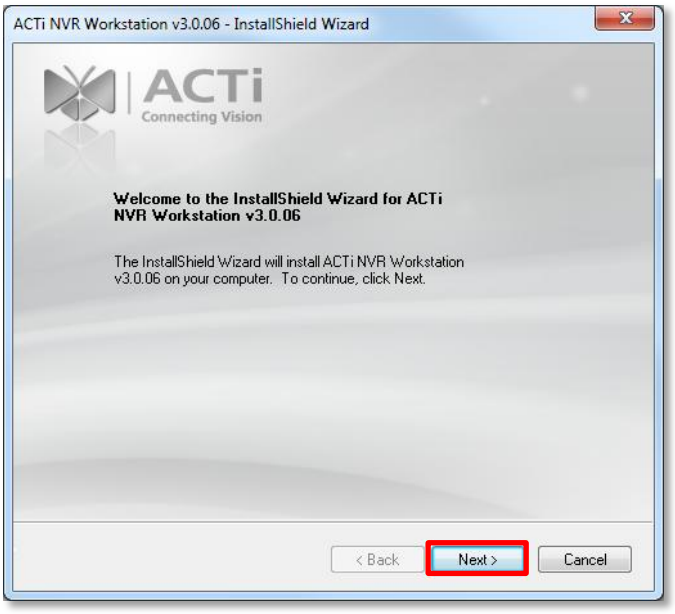
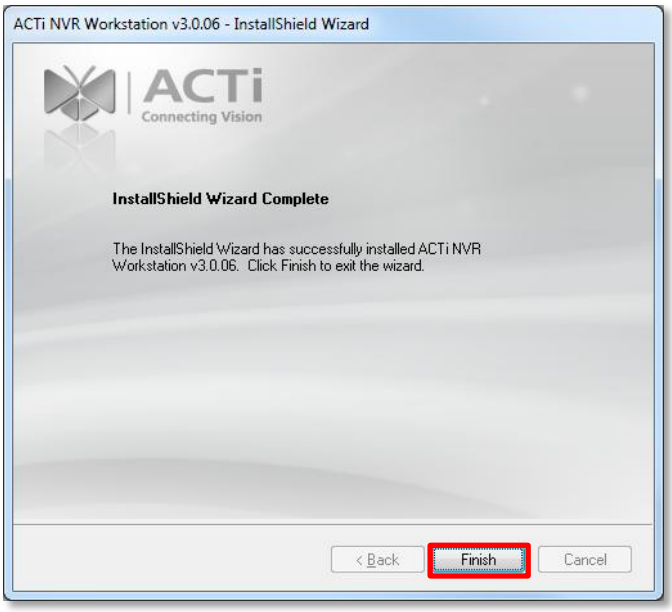
I accept the terms of the license agreement
I do not accept the terms of the license agreement
Print
InstallShield
< Back
Next >
Cancel


ACTi NVR Workstation v3.0.06 - InstallShield Wizard
ACTi
Connecting Vision
Welcome to the InstallShield Wizard for ACTi NVR Workstation v3.0.06
The InstallShield Wizard will install ACTi NVR Workstation v3.0.06 on your computer. To continue, click Next.
< Back
Next >
Cancel


ACTi NVR Workstation v3.0.06 - InstallShield Wizard
ACTi
Connecting Vision
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed ACTi NVR Workstation v3.0.06. Click Finish to exit the wizard.
< Back
Finish
Cancel

3. Double-click the shortcut

on desktop to execute the application.

Back Up System Data

Making regular system backups is always recommended in case of unexpected disasters or accidents that may damage the NVR server. Other than this, you may need to perform an on-demand backing up to migrate the whole NVR server data to another one. There are several types of data on the NVR server essential to your surveillance system, and please consider your purpose and follow the below instructions to create their backups:

Regular Backup (system settings only)

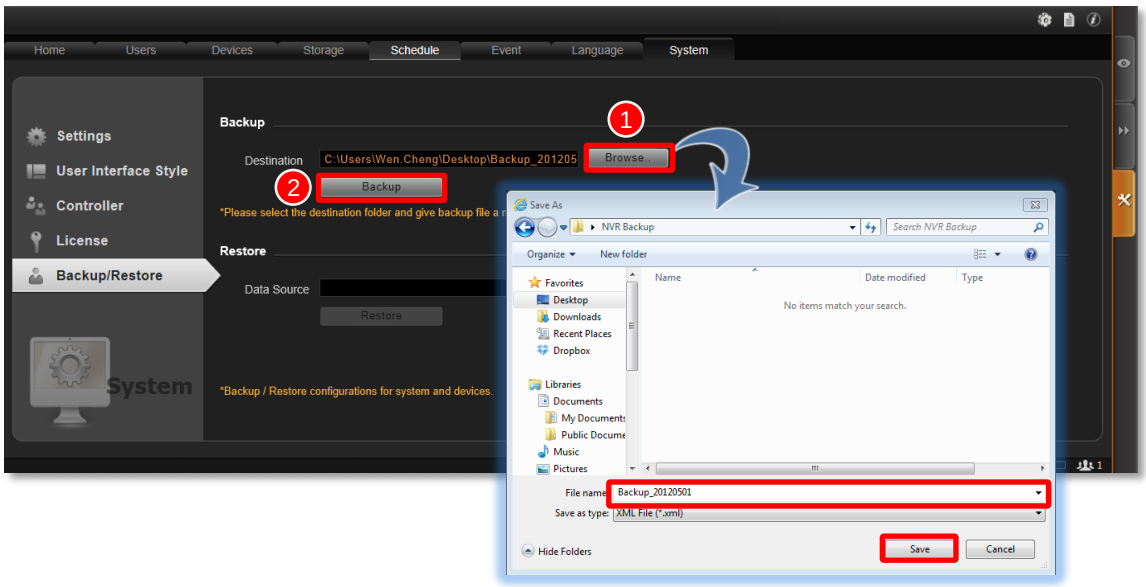
The NVR server can create a backup file of the whole system settings within one click. The backed up settings include the following properties you set for system: (1) **Users** (2) **Device** (3) **Storage** (4) **Schedule** (5) **Event** (6) **System** →**Settings** / **User Interface Style** / **Joystick**, and (7) the saved **Views** in **Live View** page.

Complete Backup (system settings + video files)

Besides system settings, some organizations may want to back up the video recording occasionally in case that the recording hard drives may fail. The recording files (*.raw) can only be played on the playback utility **Archive Player**. You may download it from http://www.acti.com/utility

Step 1: Back up System Settings

1. Go to **Setup** page →**System** tab→ **Backup / Restore**.
2. In **Backup** section, click "**Browse**" to select the destination for the backup file, and the file will be saved as *Backup_YYYYMMDD.xml* file. Then click "**Backup**" to export the file.

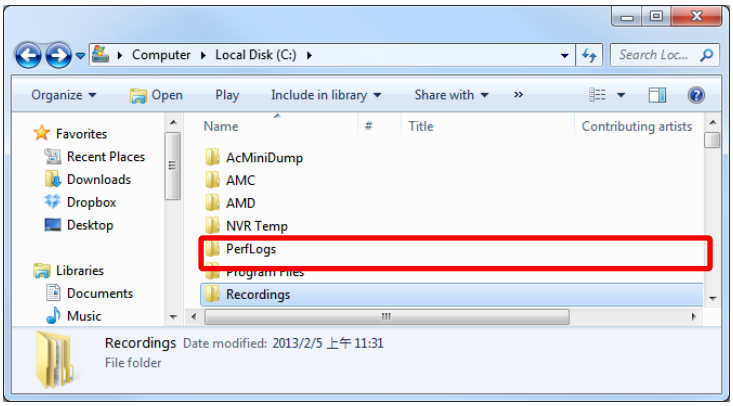


Important Notice

The license data is not included in the system backup file. You have to preserve the license key information provided in email or printed card after the purchase takes place.

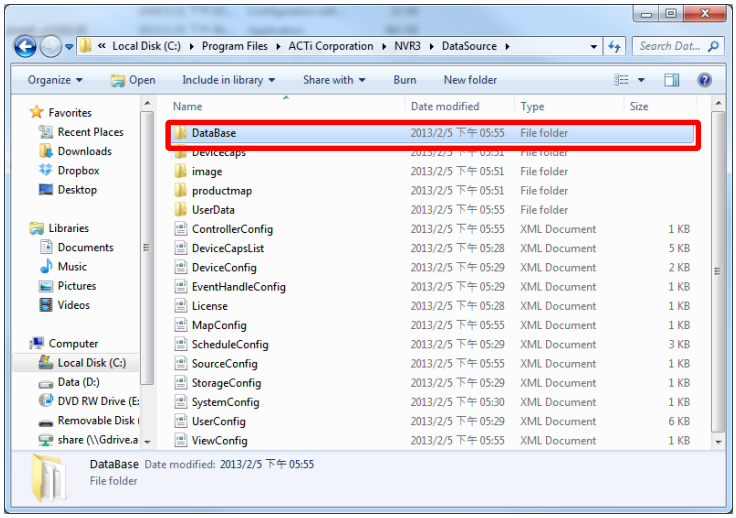
Step 2: Back up Recording Files Folder (Optional)

Back up the whole **Recordings** folder(s) with the recorded video files on storage hard drive(s). If you selected multiple storage hard drives via **Setup** page → **Storage** tab → "**Disk Drive List**", the server may have generated one **Recordings** folder under each selected drive. If you have renamed the folders or change the locations, please make sure you find the correct path.



Step 3: Back up Recording Files Index Folder (Optional)

This step is necessary for the NVR 3.0 system migration between two servers. The recording files index folder contains important video index data that the NVR server needs to process recorded video clips. Enter the server program folder **ACTi Corporation\NVR3\DataSource**, and back up the **DataBase** folder (where stores the recording files index data).


Local Disk (C:) ▸ Program Files ▸ ACTi Corporation ▸ NVR3 ▸ DataSource ▸
Search Dat...
Organize
Open
Include in library
Share with
Burn
New folder
Favorites
Recent Places
Downloads
Dropbox
Desktop
Libraries
Documents
Music
Pictures
Videos
Computer
Local Disk (C:)
Data (D:)
Name
Date modified
Type
Size
DataBase 2013/2/5 下午 05:55 File folder
image 2013/2/5 下午 05:51 File folder
productmap 2013/2/5 下午 05:51 File folder
UserData 2013/2/5 下午 05:55 File folder
ControllerConfig 2013/2/5 下午 05:55 XML Document 1 KB
DeviceCapsList 2013/2/5 下午 05:28 XML Document 5 KB
DeviceConfig 2013/2/5 下午 05:29 XML Document 2 KB
EventHandleConfig 2013/2/5 下午 05:29 XML Document 1 KB
License 2013/2/5 下午 05:28 XML Document 1 KB
MapConfig 2013/2/5 下午 05:55 XML Document 1 KB
ScheduleConfig 2013/2/5 下午 05:29 XML Document 3 KB
SourceConfig 2013/2/5 下午 05:55 XML Document 1 KB
StorageConfig 2013/2/5 下午 05:29 XML Document 1 KB
SystemConfig 2013/2/5 下午 05:30 XML Document 1 KB
UserConfig 2013/2/5 下午 05:29 XML Document 6 KB
ViewConfig 2013/2/5 下午 05:55 XML Document 1 KB
DataBase Date modified: 2013/2/5 下午 05:55
File folder

Step 4: System Log (Optional)

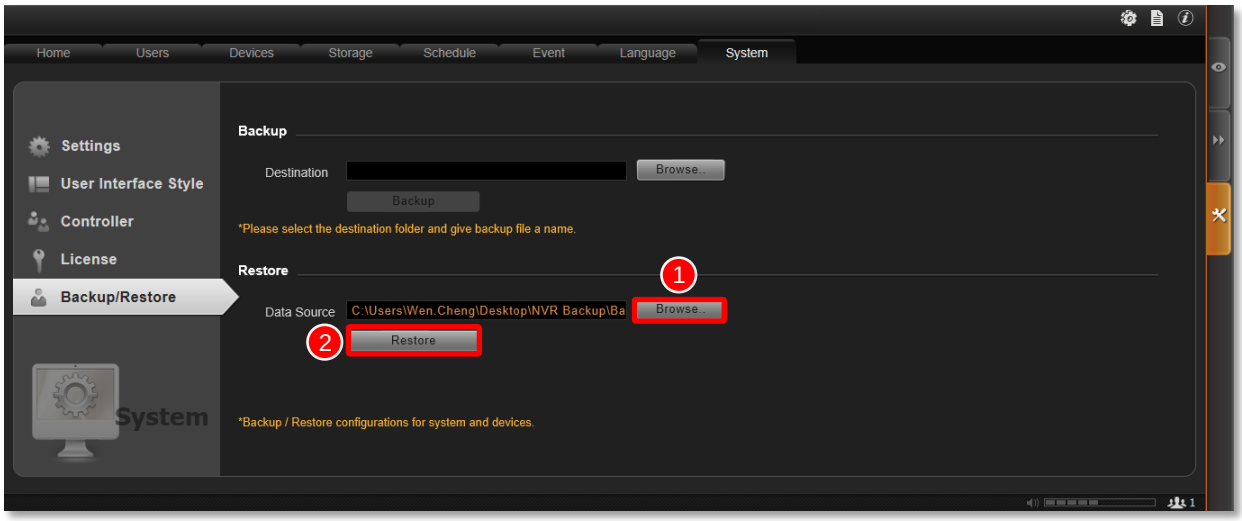
The system log records the operations users perform during logging in to the NVR server. You may export the system log of latest three days as *.csv file as backup. Please refer to the section

Export the Log on page 102 for instructions.

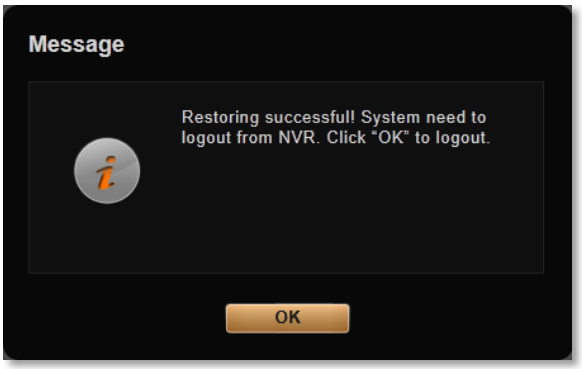
Restore System Data

Before starting restoring the system, make sure you already have the backup file (.xml). Please follow the below steps to restore the configuration.

1. Go to **Setup** page →**System** tab→ **Backup / Restore**.
2. In **Restore** section, click "**Browse**" to select the backup file, and then click "**Restore**" to start restoring the settings.



3. The restoring process requires logging out of the NVR server. After restoring is done, you may log in using your previous user account properties.

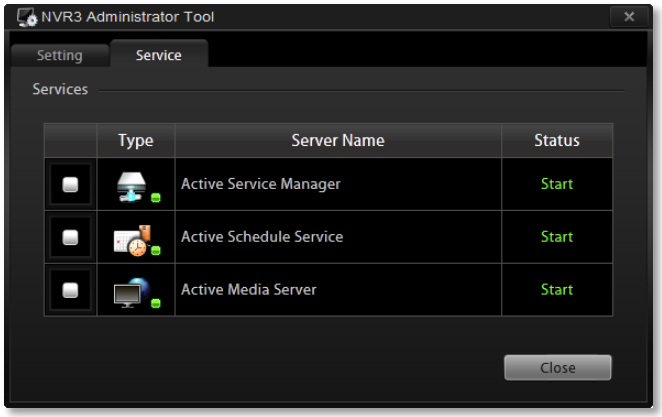


Advanced Administrative Tasks

To assist the NVR administrator in monitoring the server status and basic troubleshooting, the **NVR3 Administrator Tool** is installed along with NVR server program. This tool will start running as the server starts up, and resides in the system tray. You may double-click the icon to open this tool.

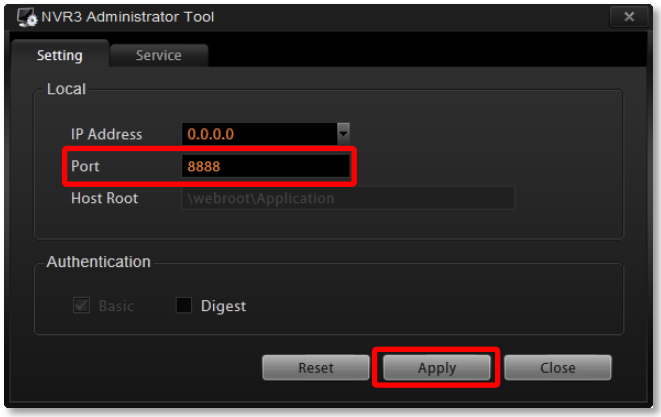
NVR Server Status

You may observe the NVR services status on **Service** tab.



Change Server Port

On **Settings** tab, input a new port and then click "**Apply**".



Change Authentication Method

You may enable the **Digest** authentication other than the basic way. With this method, User's credentials are encrypted using MD5 algorithm. In this way, the protection is more secure to prevent from unauthorized access.

Please also note that, with **Digest** authentication method enabled, a mobile client user or a domain user will be blocked from the NVR system.